EPA WORK ASSIGNMENT NUMBER: 076-2JZZ
EPA CONTRACT NUMBER: 68-W8-0110
FOSTER WHEELER ENVIRONMENTAL CORPORATION

ARCS II PROGRAM

FINAL
EXPANDED SITE INSPECTION (ESI)
UNIVERSAL WASTE & PAPER
CITY OF UTICA
ONEIDA COUNTY, NEW YORK
CERCLIS NO.: NYD980509335

SEPTEMBER 1996

VOLUME I OF II

NOTICE

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EBASCO SERVICES INCORPORATED

ARCS II PROGRAM

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NOVEMBER 1995

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EBASCO

November 21, 1995
ARCS II-95-076-1468

Ms. Catherine E. Moyik
Work Assignment Manager
U.S. Environmental Protection Agency
18th Floor
290 Broadway
New York, New York 10007

**SUBJECT: ARCS II PROGRAM - EPA CONTRACT NO. 68-W8-0110
WORK ASSIGNMENT NO. 076-2JZZ - PRE-REMEDIAL INVESTIGATION
DRAFT EXPANDED SITE INSPECTION (ESI) REPORT
UNIVERSAL WASTE & PAPER**

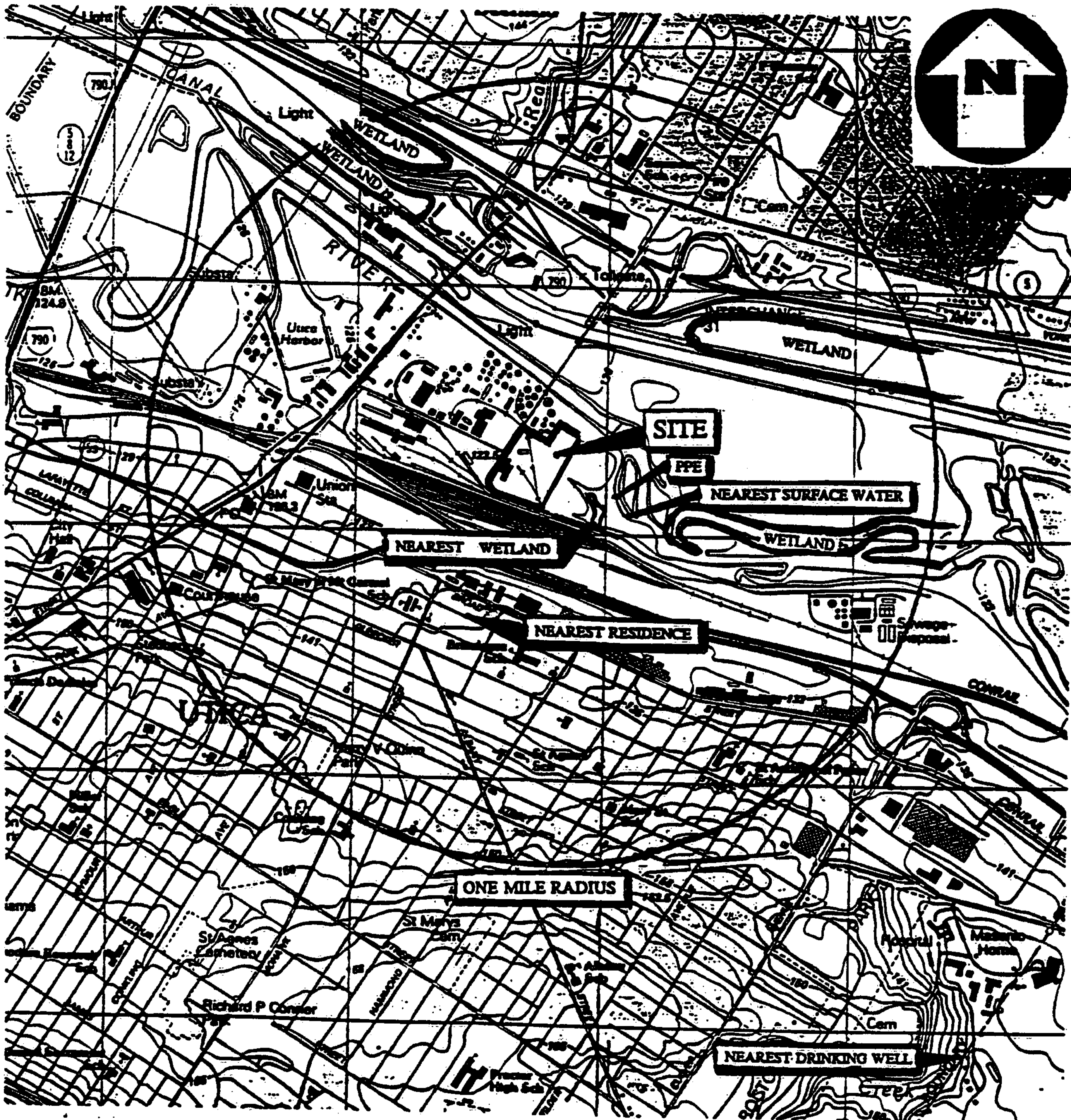
Dear Ms. Moyik:

The following is a draft summary of the Expanded Site Inspection (ESI) evaluation of the Universal Waste & Paper site, CERCLIS ID No. NYD980509335. The site is located on the east side of the intersection of Leyland Avenue and Wurtz Avenue in the City of Utica, Oneida County, New York.

General Description and Site History

The Universal Waste & Paper site is an active metal salvage yard. The site is leased from Clearview Acres, Ltd. Figures 1 and 2 depict the regional site location and a detailed site sketch, respectively. The 23-acre site (Ref. 3, p. 1 of 7) is located at the corner of Leyland Avenue and Wurtz Avenue in the City of Utica, Oneida County, New York.

The site is located in an industrial area with some commercial properties nearby (Ref. 3, p. 6 of 7). A former tank farm and Utica Transit bus yard exist to the north of the site. Northwest of the site are an operating tank farm and Utica Transit bus garage. Industrial sites such as a welding and fabricating company, a steel industry, and a fuel company exist to the west of the site along Wurtz Avenue. An International Paper lumber yard is located south of the site. To the east of the site is an inactive construction and demolition landfill (Ref. 3, p. 1 of 7).



BASE MAP IS A PORTION OF THE FOLLOWING USGS QUADRANGLES:
UTICA EAST, NY., 1983; SOUTH TRENTON, NY., 1983

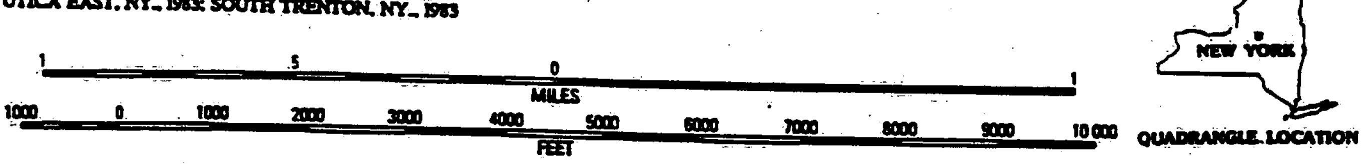


Figure 1

SITE LOCATION MAP
UNIVERSAL WASTE
UTICA, NEW YORK

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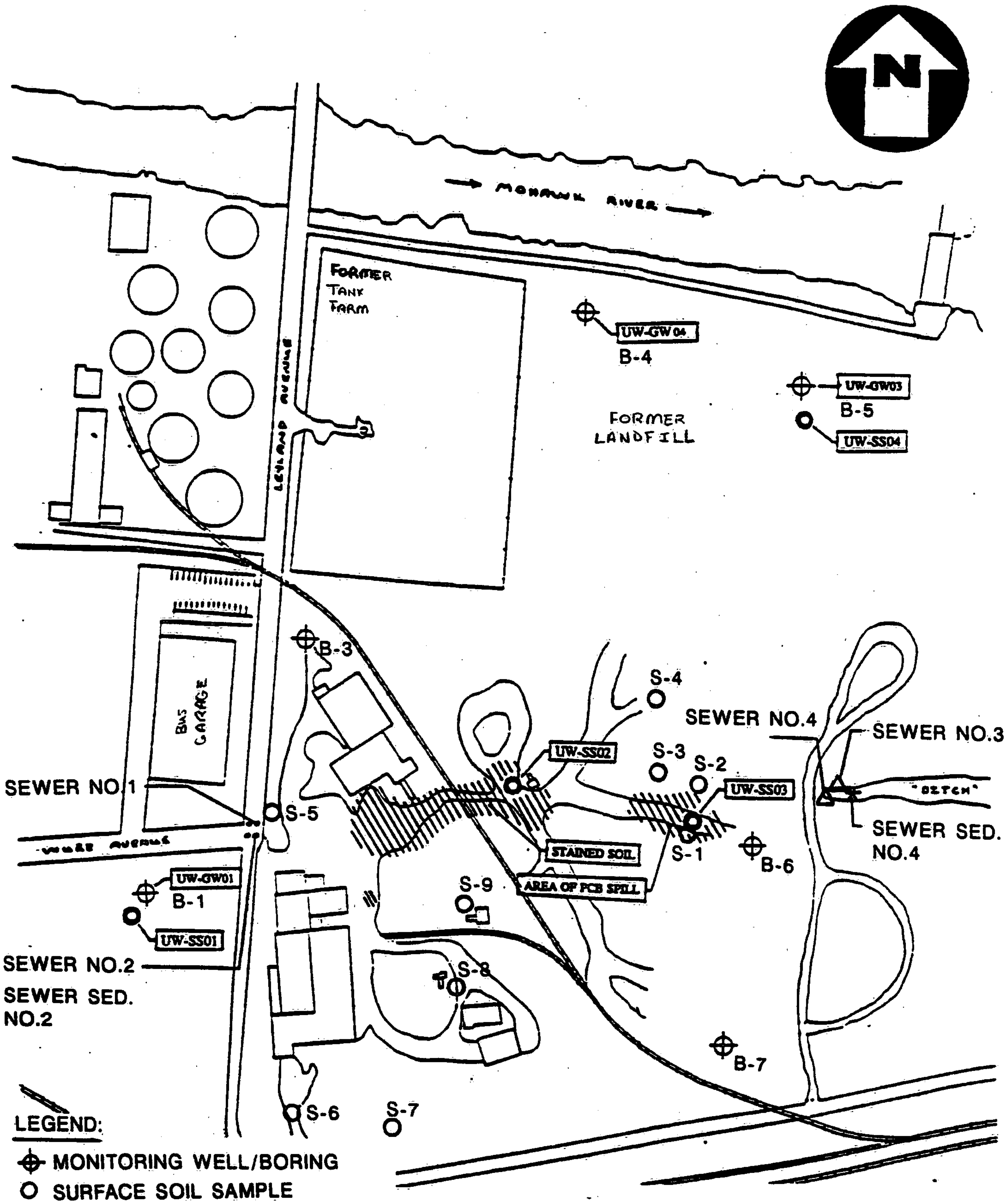

LEGEND:

- ⌖ MONITORING WELL/BORING
- O SURFACE SOIL SAMPLE
- Δ SURFACE WATER SAMPLE
- ✱ STREAM SEDIMENT SAMPLE

ADAPTED FROM SITE DIAGRAM BY CLAYTON ENVIRONMENTAL CONSULTANTS, 1984

NOT TO SCALE

Figure 2

SITE SKETCH
UNIVERSAL WASTE
UTICA, NEW YORK

EBASCO

The Universal Waste & Paper site houses two operating sister companies. Universal Waste, Inc. deals with ferrous and nonferrous scrap metal. Utica Alloys occupies the southwest corner of the site and processes specific metal materials that are stored separately from other scrap metal. Findings of the ARCS II site inspection, conducted on September 15, 1995 (Ref. 3, pp. 1 through 7 of 7), are summarized below.

The site consists of one large plant building that houses offices, laboratories, storage, and metal processing equipment including a batch cleaner, which uses trichloroethene (TCE), and a thermodynamic metal kiln. A warehouse for storage and sorting and several outbuildings are also located on the site. Piles of scrap metal are located over the majority of the site. A series of service roads provide access to the various piles. The northern third of the site is less disturbed. There are smaller more isolated piles of scrap metal and evidence that refuse had been buried there at one time (Ref. 3, p. 3 of 7). The northern third of the site is highly vegetated with brush and young trees. The site is surrounded by a chain-link fence on three sides. The remote eastern side is unfenced and highly vegetated. In addition, there is a railroad easement across the property that exits the site from the southeast corner. Locking gates provide access to the site from Leyland Avenue.

The majority of the site is unpaved. Concrete pads exist on the southwest corner of the property and to the east of the warehouse (Figure 2) (Ref. 3, p. 7 of 7). Green-stained puddles of water were noted around two piles of metal chips on the cement pad near the warehouse. The puddles were contained on the cement pad. According to the site operator, the green stain resulted when a recent rain washed residual biodegradable coolant off the metal chips (Ref. 3, p. 4 of 7). The MSDS sheet for the coolant indicates that it is a nonhazardous substance (Ref. 34, p. 1 of 1).

Unpaved, exposed ground was muddy and a number of puddles were present in the service roads. Several areas of stained soil were observed, but the extent of the staining could not be determined because the ground was so wet (Ref. 3, p. 7 of 7). No sheen or staining were observed in any puddles (Ref. 3, pp. 1 through 7 of 7). Less traveled areas, particularly in the northern portions of the site, were dry.

Several single monitoring well locations exist on the site. All monitoring wells appeared to be in good condition with the exception of the upgradient well (B-1) (Ref. 3, pp. 3 through 7 of 7). The outer steel casing and inner PVC riser had been snapped off at ground level. The well is exposed to the surface conditions.

The site lies in a slight topographic low and is relatively flat (Ref. 3, p. 7 of 7; Ref. 4, p. 6 of 37). Runoff from surrounding roadways and overflowing storm sewers enters the site. During the site inspection, the site was very muddy with numerous mud puddles indicating that the site is poorly drained. There are no distinct drainage paths on site. However, it is likely that some runoff may migrate into the drainage ditch adjacent to the eastern border of the property. The drainage ditch is located approximately 600 feet from areas of stained soil (Ref. 4, p. 6 of 37).

The site was owned by the City of Utica prior to 1957 (Ref. 4, p. 3 of 37). There are reports that the site was a municipal landfill during that time (Ref. 4, p. 3 of 37; Ref. 5, p. 3 of 98; Ref. 6, p. 1 of 1). During the ARCS II site inspection, old, decayed refuse was exposed at the surface where brush had recently been cleared in the northern quarter of the site near monitoring well B-4 (Figure 2) (Ref. 3, p. 3 of 7). This physical evidence supports the documentation that the site was used as a landfill at one time. The extent of the landfilled area is not known.

A scrap metal yard has been operating on the site since the property was purchased in 1957 by Universal Waste and Paper, Inc. (Ref. 4, p. 3 of 37). Universal Waste, Inc. was formed in 1973 after Universal Waste and Paper, Inc. was dissolved as an estate settlement (Ref. 4, p. 3 of 37). Universal Waste, Inc. entered into a lease agreement with the estate to operate a scrap metal salvage and reclamation facility at the site. Approximately one acre was leased to Utica Alloys, Inc., which is a similar type of metal salvage facility. In 1984, the property was purchased by Clearview Acres, Ltd. (Ref. 4, p. 3 of 37). Universal Waste, Inc. and Utica Alloys, Inc. continue to lease the property from Clearview Acres, Ltd. for their operations.

In 1977, soil, surface water, and sediment sampling conducted by the New York State Department of Environmental Conservation (NYSDEC) indicated the presence of PCBs in soils at concentrations greater than three times background levels (Ref. 7, pp. 1 through 12 of 12). Soil sample location LUZ-4 was designated as the background location because it contained the lowest PCB concentration (4.0 ppm) (Ref. 7, pp. 1 through 8 of 12). LUZ-2, LUZ-5, LUZ-6, and LUZ-7 contained PCB concentrations (53-51,200 ppm) greater than three times background levels (Ref. 7, pp. 1, 3, and 6 through 8 of 12). Soil contaminated with PCBs was removed by the owner under the guidance of NYSDEC in 1980 (Ref. 3, p. 1 of 7; Ref. 4, p. 3 of 37; Ref. 5, p. 3 of 98). No other information is available on this removal.

Unvalidated analytical data from samples collected by the NYSDEC in July 1977 indicated the presence of PCBs (68 ppb) in the sediment sample and TCE (>1,000 ppb) in two surface water samples (Ref. 4, p. 11 of 37; Ref. 7, pp. 11 and 12 of 12). However, samples were obtained from overland segments of the surface water pathway and no upstream background sample was collected.

A remedial investigation was conducted in 1984 by Clayton Environmental Consultants, Inc. (Clayton) as part of a voluntary action by Universal Waste, Inc. The investigation included the installation of seven overburden monitoring wells, as well as soil, groundwater, surface water, sediment, and air sampling (Ref. 5, p. 7 of 98). Soil samples indicated the presence of PCBs, TCE, and three organic substances (Ref. 5, pp. 11, 12, 25 and 26 of 98). Unvalidated analytical groundwater results indicated the presence of PCBs in the groundwater at all well locations, including the upgradient wells (Ref. 5, pp. 23 and 24 of 98). TCE (5 ppb), 1,1,1-trichloroethane (5 ppb), and tetrachloroethylene (10 ppb) were detected in well B-2 (Ref. 5, p. 24 of 98). Several metals and phenols were also detected in monitoring wells in excess of potable water quality limits (Ref. 5, p. 24 of 98). However, since validated groundwater analytical results were available, the unvalidated Clayton data were not used in the evaluation of this site.

Clayton collected surface water and stream sediment samples from storm sewers and the outfall ditch in 1984. Unvalidated data indicate TCE was present in downstream sediment (Sewer Sed No. 4) at a concentration (52,000 ppm) greater than three times background levels (Ref. 5, pp. 16 and 17 of 98). This compares to a TCE concentration of 3 ppm in Sewer Sed No. 2 which is considered the background sampling location (Ref. 5, p. 17 of 98). Chromium was also detected in a downstream surface water sample (Sewer No. 4) at a concentration (0.023 ppm) greater than three times background levels. Sewer No. 1 and Sewer No. 2 were designated as background surface water locations along the intermittent surface water body because they are located in an upstream position from the site (Ref. 5, p. 16 of 98). Chromium concentrations in Sewer No. 1 and Sewer No. 2 were 0.0062 and 0.0043 ppm, respectively (Ref. 5, p. 17 of 98).

Sewer No. 1 had a substantial layer of what appeared to be free product (Ref. 5, p. 14 of 98). Analysis of Sewer No. 1 indicated 7,200 ppm of aqueous phase TCE (Ref. 5, p. 17 of 98).

TCE was detected in downstream surface water (Sewer No. 4) at a concentration of 2,300 ppm (Ref. 5, pp. 16 and 17 of 98). However, higher concentrations of TCE (7,200 ppm) were present in background surface water at Sewer No. 1, indicating an upstream source of TCE in the area. The off-site source may also be contributing to TCE concentrations found in downstream sediment samples. Therefore, TCE contamination in the outflow ditch cannot be positively attributed to the Universal Waste site because of another upstream source. In addition, the concentration of TCE in the outfall ditch sediment sample (52,000 ppm) is more than 8,000 times greater than the most contaminated soil sample from the site (6.48 ppm at B-7) (Ref. 5, pp. 12 and 17 of 98) further suggesting that another source is responsible for TCE contamination in the outfall ditch.

Surface soils were analyzed for several inorganics, TCE, and PCBs by Clayton in 1984. Inorganics were analyzed via EP Toxicity testing methods (Ref. 5, p. 10 of 98). Unvalidated results indicate the presence of TCE and PCB at concentrations greater than three times background levels. S-4 was selected as the background sample because it contained the lowest PCB (<1.0 ppm) and TCE (undetected) concentrations (Ref. 5, pp. 11 and 12 of 98). There were five locations containing PCB concentrations (3.3-36,000 ppm) greater than three times background levels. These locations were evaluated as a unique source with an area of 420,000 square feet. The maximum concentration of PCB (36,000 ppm) was detected at S-2 (Ref. 5, p. 12 of 98). There were four locations containing TCE concentrations (66.9-6,480 ppb) greater than three times background levels. The locations were evaluated as a unique source with an estimated area of 270,000 square feet. The maximum concentration of TCE (6,480 ppb) was detected at S-7 (Ref. 5, pp. 11 and 12 of 98).

Subsurface soils were also analyzed by Clayton in 1984. PCBs were found at concentrations greater than three times background at one location (B-4) (Ref. 5, pp. 25 and 26 of 98). Cadmium and lead were detected at concentrations greater than three times background at one location (B-5) (Ref. 5, pp. 25 and 26 of 98). Location B-1 was designated as background (Ref. 5, pp. 25 and 26 of 98). Both locations were estimated to have one square foot of contaminated soil.

An air quality study by Clayton in 1984 detected TCE downwind from the site at concentrations greater than three times upwind background levels on two of three days (Ref. 5, pp. 30 and 31 of 98).

A Screening Site Inspection (SSI) investigation was conducted by Ebasco Environmental in March 1992 (Ref. 4, p. 6 of 37). The SSI inspection included the collection of soil and groundwater samples. Validated analytical results of groundwater samples collected by Ebasco indicated the presence of two metals at concentrations greater than background levels on the site. Barium (1,350 ppb) and mercury (0.81J ppb) were detected in B-5 (UW-GW03) at concentrations greater than three times background levels (Ref. 4, p. 35 of 37; Ref. 10, pp. 201 and 202 of 212). Barium (929 ppb) was also detected in B-4 (UW-GW04) at concentrations greater than three times background levels (Ref. 4, p. 35 of 37; Ref. 10, pp. 201 and 211 of 212). B-1 (UW-GW01) was utilized as the upgradient background well based on flow directions (Ref. 5, pp. 70 and 71 of 98). Barium was detected at 183 ppb and mercury was undetected in the background well (Ref. 4, p. 35 of 37; Ref. 10, p. 201 of 212). No other inorganics, volatiles, semi-volatiles, pesticides or PCBs were detected in groundwater at the site at concentrations greater than three times background (Ref. 4, pp. 33 through 35 of 37; Ref. 10, pp. 79, 81, 103, 105, 106, 108, 109, 138, 139, 141, 142, and 152 of 212). Therefore, there is an observed release of two inorganic constituents, barium and mercury, to the unconsolidated aquifer.

Validated analytical soil data were collected by Ebasco in 1992. Four soil samples were analyzed for volatiles, semi-volatiles, inorganics, pesticides, and PCBs. Soil sample UW-SS01 was selected as the background sample because of its off-site location. Each sample location was treated as a separate source because there appeared to be no correlation of contaminants between locations. Nine inorganics, nine volatile and semi-volatile compounds, two pesticides, and PCBs were detected at concentrations greater than background levels (Ref. 4, pp. 28 through 32 of 37; Ref. 10, pp. 79 through 152 and 201 through 212 of 212).

No organic vapor readings in the ambient air were detected during the 1992 Ebasco investigation (Ref. 32, pp. 1 through 7 of 7).

Universal Waste & Paper is currently designated as a Class 2 site by the NYSDEC (Ref. 8, p. 1 of 1; Ref. 9, p. 1 of 1), which means that the site has confirmed hazardous waste disposal with significant threat to health and the environment. The NYSDEC is performing an off-site investigation around the property to determine if any off-site contamination would impact the site because the operator contends that overflow from the sanitary sewers carries contaminants onto the site. A voluntary on-site investigation is being performed by Universal Waste, Inc. to determine the nature and extent of contamination.

During the ARCS II site inspection on September 15, 1995, an OVM Model 580S photoionization detector with a 10.2 eV lamp was used to monitor ambient air. Ambient air measurements in the breathing zone were not detected above background levels during the site inspection (Ref. 3, pp. 1 through 7 of 7).

Evaluation of Existing Information

Existing information and analytical data were obtained from the 1977 NYSDEC analytical package, the Clayton Environmental Consultants, Inc. (Clayton) 1984 report, the 1992 Screening Site Inspection (SSI) Report by Ebasco Services, Inc. (Ebasco), population information, and correspondence to and from the NYSDEC. This information indicates that hazardous wastes were disposed of at the site, although some remediation of contaminated soil has been performed. Contaminants are present in soil and groundwater at concentrations greater than three times background levels. Contaminants are also present in the intermittent surface water pathway, although higher concentrations were detected upgradient from the site. Remaining contaminated soil at the site may allow migration of contaminants.

Hazard Assessment

Updated and additional information and collected data were utilized to further evaluate the site to determine the need for CERCLA remedial action. Updated and additional information and data include public water supply information, federal wetland maps, and resource and sensitive environment information.

Waste Source Description

Four potential sources of hazardous waste have been identified at the site: TCE-contaminated soil, PCB-contaminated soil, the former landfill, and several areas of contaminated soil with miscellaneous contaminants.

Landfill

Documentation and physical evidence observed during the site inspection confirm that a portion of the site was used as a former municipal landfill for the City of Utica. Based on the presence of exposed refuse, it is assumed that the landfill is uncapped (Ref. 3, p. 3 of 7) and probably unlined. Because there has been no sampling to confirm the presence/ absence of hazardous contaminants associated with the landfill, the landfill was assumed to have a source area of 1 square foot.

TCE-Contaminated Soil

TCE-contaminated soil was identified from unvalidated analytical results of samples collected by Clayton in 1984 (Ref. 5, pp. 9 through 12 of 98). Four soil samples from the southwest corner of the site (S-5, S-6, S-7, and S-8) indicated contamination with TCE at concentrations greater than three times background levels. S-4 was selected as the background sample because it had the lowest concentrations of PCBs (<1.0 ppm) and TCE (undetected) (Ref. 5, p. 12 of 98). The area defined by S-5, S-6, S-7, and S-8 was used as the area of contamination. The area was estimated to be 270,000 square feet. Detections of TCE ranged from 66.9 to 6,480 ppb (Ref. 5, p. 12 of 98). The highest TCE concentration was used to define contamination of the source.

PCB-Contaminated Soil

Unvalidated analytical results of soil samples collected by Clayton in 1984 detected PCB contamination at seven locations (S-1, S-2, S-3, S-9, S-6, S-7, and S-8) (Ref. 5, pp. 11 and 12 of 98). The area of PCB contamination is defined by the area between these locations. The area of PCB contamination extends from the southwest corner of the site to the center of the site. The area of contamination was estimated to be 420,000 square feet. S-4 was selected as the background sample because it had the lowest concentrations of PCBs and TCE. The concentration of PCBs at S-4 was <1.0 ppm (Ref. 5, p. 12 of 98). PCB detections at levels greater than three times background ranged from 3.3 to 36,000 ppm. The highest PCB concentration was used to define the source.

In addition, PCBs were also detected in a subsurface soil sample at concentrations greater than three times background. PCBs (1.8 ppm) were detected at B-4 in the 10 to 12-foot interval (Ref. 5, pp. 25, 26, and 73 of 98). B-1 was designated as the background sample because of its off-site upgradient location (Ref. 5, p. 25 of 98). The concentration of PCBs in B-1 were less than 1 ppm (Ref. 5, pp. 26 and 73 of 98). The area of contamination was unknown but was estimated to be one square foot.

Miscellaneous Contaminated Soil

Three soil samples collected by Ebasco in 1992 indicated the presence of organic and inorganic constituents at concentrations greater than three times background levels (Ref. 4, p. 5 of 37; Ref. 10, pp. 79 through 152 and 201 through 212 of 212). The three samples were evaluated as separate sources because the majority of chemical constituents detected at each location were unique to that location. Soil sample location UW-SS01 was utilized as the background sample for UW-SS02, UW-SS03, and UW-SS04 because of its off-site location (Figure 2).

Contaminants detected at UW-SS02 at concentrations greater than three times background levels include 91 ppb 2-butanone, 72 ppb benzene, 150 ppb toluene, 190 ppb total xylene, indeno(1,2,3-cd)pyrene (450 ppb), 169 ppm barium, 6 ppm cadmium, 68.3 ppm chromium, 191 ppm copper, and estimated concentrations of 2-methylnaphthalene (560J ppb), phenanthrene (920J ppb), benzo(a)anthracene (730J ppb), PCBs (4,200J ppb), and nickel (160J ppm) (Ref. 4, pp. 27 through 32 of 37; Ref. 10, pp. 91, 123, 124, 147, and 207 of 212). The area of observed contamination associated with UW-SS02 was determined to be 120,000 square feet by Ebasco (Ref. 11. p. 2 of 25). However, only one sample was taken. Therefore, the source area used was one square foot. Duplicate PCB analyses were not within control limits, but were used for evaluation purposes.

Six inorganics and two organics were detected at UW-SS03 at concentrations greater than three times background levels. Cadmium (3.4J ppm), chromium (63.6 ppm), cobalt (21.7 ppm), iron (67,300 ppm), nickel (118J ppm), vanadium (88.1J ppm), di-n-butyl phthalate (2,700J ppb), and PCBs (56,000J ppb) were greater than three times background levels (Ref. 4, pp. 27 through 32 of 37; Ref. 10, pp. 93, 126, 127, 148 and 208 of 212). The PCB concentration was not used to characterize this source since UW-SS03 coincides with Clayton soil sample S-1 and S-1 was included in the PCB-contaminated soil area (Figure 2) (Ref. 4, p. 27 of 37; Ref. 5, p. 11 of 98). Although Ebasco noted an area of stained soil (former PCB spill area) surrounding UW-SS03 (Ref. 4, p. 5 of 37), the area of contaminated soil is unknown, but was estimated to be approximately one square foot. Duplicate iron and PCB analyses were not within control limits, but were used for evaluation purposes.

Contaminants detected in UW-SS04 at concentrations greater than three times background levels include barium (425 ppm), cadmium (3.9J ppm), lead (1,520 ppm), DDT (23J ppb), and alpha chlordane (16J ppb) (Ref. 4, pp. 28 through 32 of 37; Ref. 10, pp. 95, 97, 129 through 133, 149, 150, 209, and 210 of 212). The area of contamination associated with UW-SS04 is unknown. An estimated area of one square foot was utilized.

Background concentrations from UW-SS01 of contaminants detected at the site are as follows: undetectable 2-butanone, 13J ppb benzene, 13J ppb toluene, 13J ppb xylene, 420J ppb 2-methylnaphthalene, 420J ppb di-n-butylphthalate, 4.2J ppb DDT, and 2.2J ppb alpha-chlordane; 250J ppb phenanthrene; 230J ppb benzo(a)anthracene; 120J ppb indeno (1,2,3-cd) pyrene; 160J ppb PCBs; 49.9B ppm barium; 0.60B ppm cadmium; 13.30 ppm chromium; 6.00B ppm cobalt; 53NJ ppm copper; 14800* ppm iron; 232 ppm lead; 24.7J ppm nickel; and 15.90J ppm vanadium (Ref. 4, pp. 27 through 32; Ref. 10, pp. 89, 120, 121, 146, and 206 of 212).

In addition, two inorganics were detected in a subsurface soil sample collected by Clayton at concentrations greater than three times background. Cadmium (0.04 ppm) and lead (0.5 ppm) were detected in the 10 to 12-foot interval at B-5 (Ref. 5, pp. 25, 26, and 73 of 98). B-1 was designated as the background sample because of its off-site upgradient location (Ref. 5, p. 25 of 98). The concentrations of cadmium at the background location were 0.0025 and 0.010 ppm at depth intervals of 6 to 8 feet and 20 to 22 feet below ground surface (bgs), respectively. Lead concentrations at B-1 were 0.010 at 6 to 8 feet bgs and 0.043 ppm at 20 to 22 feet bgs (Ref. 5, pp. 26 and 73 of 98). The area of contamination was unknown, but was estimated to be one square foot.

Groundwater Pathway

The Universal Waste & Paper site is located in the Mohawk River Valley. The generalized stratigraphy at the site from ground surface to depth is as follows: fill, interbedded silt and clay, sand and gravel, interbedded silt and clay with occasional sand lenses, and bedrock (Ref. 4, p. 6 of 37; Ref. 5, pp. 60 through 66 of 98; Ref. 12, p. 7 of 7). Unconsolidated sediments beneath the site are alluvial and glaciolacustrine valley-fill deposits (Ref. 12, pp. 5 and 6 of 7). The maximum known thickness of unconsolidated material in the vicinity of the site is approximately 110 feet.

Ordovician Utica Shale makes up the bedrock aquifer that is the predominant source of groundwater in Oneida County (Ref. 12, pp. 5 and 6 of 7). Geologic cross sections compiled by the USGS and Clayton illustrate the stratigraphic setting at the site (Ref. 5, p. 72 of 98; Ref. 12, p. 7 of 7).

The unconsolidated aquifer at the site consists of fill underlain by alluvial and glaciolacustrine deposits. Fill materials are approximately 4.5 to 13 feet thick and consist of cinders, ash, silt, sand and gravel (Ref. 5, pp. 60 through 66 of 98). Old refuse was exposed at the surface in northern portions of the site (Ref. 3, p. 3 of 7). The thickest fill deposits were encountered at B-5 (Ref. 5, p. 64 of 98). Fill materials appear to have low permeability because the site is muddy with ponded water for most of the year (Ref. 3, p. 3 of 7). Silt and clay layers occur beneath the fill. At the site, all monitoring wells are screened in the sand and gravel unit that underlies silt and clay (Ref. 5, pp. 60 through 66 of 98). The sand and gravel layer ranges in known thickness from 4 to 9.5 feet and is thickest at B-7 (Ref. 5, pp. 60 through 66 of 98). The sand and gravel unit represents a higher permeability zone in the unconsolidated aquifer. Silt and clay deposits occur beneath the sand and gravel (Ref. 5, p. 60 of 98; Ref. 12, p. 7 of 7). Additional sand and gravel layers have been encountered at depth in unconsolidated deposits in the Utica area (Ref. 12, p. 7 of 7). Sand and gravel units have been included in the unconsolidated aquifer because of the heterogeneous and interbedded nature of alluvial deposits.

Depth to groundwater under the site was estimated to be between 5 to 10 feet (Ref. 4, p. 20 of 37). The average permeability of the unconsolidated aquifer is 19.48 gpd per square foot (9.2E-4 cm/sec) based on the permeabilities calculated from in situ permeability tests on B-1, B-5, and B-7 (Ref. 5, pp. 21, 68, and 69 of 98). The direction of groundwater flow in the unconsolidated aquifer at the site is influenced by the Mohawk River. Groundwater flows in an easterly to northeasterly direction (Ref. 5, pp. 21, 70, and 71 of 98).

The bedrock aquifer in the area consists of sedimentary units of the Lorraine Group. Utica Shale directly underlies the site (Ref. 12, pp. 5 and 6 of 7). Utica Shale is a black carbonaceous shale whose permeability is influenced primarily by secondary features. There are no known bedrock wells in the vicinity of the site. The bedrock aquifer is interconnected with the unconsolidated aquifer in the vicinity of the site.

Groundwater samples were collected from wells at the site by Clayton (1984) (Ref. 5, p. 7 of 98) and Ebasco (1992) (Ref. 4, p. 26 of 37). Unvalidated data collected by Clayton were not used because validated data from Ebasco were available. Groundwater data from Ebasco indicated an observed release of barium and mercury to the upper aquifer (Ref. 10, pp. 202 and 211 of 212).

Due to the lack of bedrock wells at the site, a release to the bedrock aquifer could not be confirmed. However, the hydrogeological scenario of the site indicates that it is unlikely that the groundwater in the bedrock aquifer would become contaminated by activities at the site. Because the Mohawk River is in close proximity of the site, surficial groundwater flow would likely discharge to the river. In addition, thick sequences of low permeability silt and clay units occur beneath the site, which may inhibit migration of contaminants (Ref. 12, p. 7 of 7).

According to population calculations by Ebasco, 75,231 people reside within four miles of the site (Ref. 13, p. 3 of 23). Of the total population within four miles of the site (75,231), there are 1,771 people using private sources of groundwater as follows: 2 people within 1 to 2 miles of the site; 803 people within 2 to 3 miles of the site; and 966 within 3 to 4 miles of the site (Ref. 15, pp. 1 and 2 of 2). The nearest private well is located 1.8 miles southeast of the site (Ref. 4, p. 20 of 37). According to the Herkimer County Department of Public Health, most private wells are drilled to bedrock, but some are screened in unconsolidated deposits (Ref. 16, p. 1 of 1). No residential well data are available. Since the bedrock aquifer is the dominant aquifer, it is assumed that 80 percent of private well users draw groundwater from the bedrock aquifer and 20 percent of private well users draw groundwater from unconsolidated overburden.

Public water supplies are responsible for supplying drinking water to the remaining population (73,460 people) residing within four miles of the site. The Utica Municipal System supplies drinking water to this population from reservoirs in the area (Ref. 4, p. 6 of 37). There are no other municipal or community groundwater systems within the 4-mile radius (Ref. 17, pp. 2 and 4 of 5).

The Universal Waste & Paper site is not located within a wellhead protection area (Ref. 18, p. 1 of 1). Groundwater from the unconsolidated and bedrock aquifers within the target distance limit was assumed to be used as a resource for watering commercial crops and commercial livestock because rural areas are dominated by agriculture.

Surface Water Pathway

Although numerous mud puddles were observed on the site during the site inspection, no surface water bodies were observed on or adjacent to the site (Ref. 3, pp. 1 through 7 of 7). No staining or sheens were observed on puddles at the site. A drainage ditch exists on the property bordering the site to the east. The drainage ditch receives runoff from the site as well as stormwater sewer discharge from municipal storm sewers (Figure 2) (Ref. 4, p. 22 of 37; Ref. 5, p. 13 of 98). Runoff moves through the ditch to the Mohawk River. The distance from sources at the site to the probable point of entry (PPE) is 1,000 feet (Figure 1) (Ref. 4, p. 22 of 37).

Surface water and stream sediments have been sampled by NYSDEC in 1977 and Clayton in 1984. Samples were obtained from stormwater sewers and the sewer outfall ditch which are assumed to be intermittent. These data were not used in evaluating the surface water pathway because they were obtained from intermittent streams in an area receiving more than 20 inches of annual precipitation. No surface water or stream sediment samples were obtained from in-water segments of the surface water pathway (i.e., Mohawk River).

The Universal Waste & Paper site is located within a 100-year floodplain (Ref. 19, pp. 2 and 3 of 3). The 2-year, 24-hour rainfall in the site vicinity is 2.5 inches (Ref. 20, p. 3 of 3). As a conservative estimate, the entire site (23 acres) was included in the drainage area for this evaluation. During rainfall events, stormwater ponds on the site since the site lies in a slight topographic low (Ref. 4, p. 6 of 37). Many puddles were observed during the site visit, and the site is always muddy according to site personnel (Ref. 3, p. 3 of 7). There are no distinct drainage paths that were observed on the site, but runoff is assumed to migrate into the outfall drainage ditch located to the east (Ref. 4, p. 6 of 37). Runoff entering the outflow ditch would discharge into the Mohawk River at the PPE. The Mohawk River is the nearest perennial surface water body. The overland flow PPE is located at a distance of 1,000 feet from on-site sources. The groundwater-to-surface water PPE is located 100 feet upstream (-0.02 mile) from the overland flow PPE (Figure 1) (Ref. 1, p. 1 of 1). The Mohawk River is the only surface water segment within the 15-mile downstream target distance limit (TDL) (Ref. 21, p. 1 of 1).

An average low-flow discharge rate was calculated from several readings of the Mohawk River in the vicinity of Utica. The average low-flow discharge rate is 495 cfs (Ref. 22, p. 4 of 4).

There are no surface water intakes within the 15-mile TDL (Ref. 16, p. 1 of 1). Several surface water resources were identified within the 15-mile TDL. Surface water may be used for watering commercial livestock that are pastured along the river (Ref. 16, p. 1 of 1). Produce farms along the Mohawk River may also use the river as a source of irrigation water (Ref. 23, p. 1 of 1). The Mohawk River is designated as both Class C and Class B within the 15-mile TDL. Because of the state water quality designation, the Mohawk River is considered a sensitive environment for the protection of aquatic life (Ref. 1, p. 1 of 1; Ref. 24, pp. 2 and 3 of 6; Ref. 25, p. 1 of 1).

Federal and state wetlands occur along the Mohawk River surface water pathway (Ref. 14, p. 1 of 1; Ref. 21, p. 1 of 1). Wetlands along the Mohawk River are located from the PPE as follows: 0.67 mile from the PPE with 0.02 mile of wetland frontage; 0.97 mile from the PPE with 0.13 mile of wetland frontage; 1 mile from the PPE with 0.15 mile of frontage; 1.19 miles from the PPE with 0.01 mile of frontage; 2.19 miles from the PPE with 0.04 mile of frontage; 2.90 miles from the PPE with 0.02 mile of wetland frontage; 2.93 miles from the PPE with 0.07 mile of wetland frontage; 6.38 miles from the PPE with 0.12 mile of frontage; 10.28 miles from the PPE with 0.08 mile of frontage; 11.45 miles from the PPE with 0.05 mile of frontage; 13.06 miles from the PPE with 0.12 mile of frontage; and 13.57 miles from the PPE with 0.03 mile of wetland frontage (Ref. 26, p. 1 of 3). The Mohawk River contains riverine wetlands along its course as follows: 0.0 mile from the PPE with 1.75 miles of frontage; 1.8 miles from the PPE with 3.68 miles of frontage; and 7.95 miles from the PPE with 7.05 miles of frontage (Ref. 26, p. 1 of 3).

There are no known occurrences of rare animals, plants, or natural communities and/or significant habitats on or adjacent to the Universal Waste & Paper site or along the surface water pathway (Ref. 27, p. 1 of 4; Ref. 28, p. 2 of 5).

The Mohawk River is fished heavily along the downstream surface water pathway (Ref. 29, p. 1 of 1). The river supports a diverse warm water fishery including walleye, small-mouth bass, yellow perch, and carp (Ref. 30, p. 1 of 2). New York State has issued an "EAT NONE" advisory for carp for the entire surface water pathway within the 15-mile TDL because of PCB contamination (Ref. 30, p. 1 of 2). Concentrations of toxic substances present in walleye and perch from the Mohawk River at Utica are below concentration guidelines (Ref. 31, pp. 3 through 6 of 6). Fishery production is unknown. According to a survey by the NYSDEC Utica Office, 15 years ago, 50,000 to 75,000 people fished the river in Oneida and Herkimer Counties (Ref. 29, p. 1 of 1). Because there is no hard evidence for fishery production, production is assumed to be one pound per year. No commercial fisheries exist along the Mohawk River within the 15-mile downstream surface water pathway (Ref. 30, p. 1 of 2).

Soil Pathway

Surface soil sampling has been performed at the Universal Waste, Inc. site by NYSDEC in 1977, Clayton in 1984, and Ebasco in 1992. Analytical data from the NYSDEC and Clayton were not validated. Results were validated for the Ebasco data.

As was discussed earlier, unvalidated soil data indicated the presence of PCB and TCE contamination (Ref. 5, pp. 11, 12, 25, and 26 of 98; Ref. 7, pp. 1 through 8 of 12). Validated soil data indicated the presence of PCBs, nine inorganics, nine organic compounds and two pesticides at concentrations greater than three times background (Ref. 4, pp. 28 through 32 of 37; Ref. 10, pp. 79 through 152 and 201 through 212 of 212). Therefore, there is observed soil contamination at the site.

There are no on-site residences, schools or day-care centers within 200 feet of any areas of observed contamination (Figure 1) (Ref. 3, p. 7 of 7). The maximum number of workers on the site is 40 (Ref. 3, p. 2 of 7). There are 845 residents between 0 and 0.25 mile from the site;

2,540 residents between 0.25 and 0.5 mile of the site; and 10,159 residents between 0.5 and 1 mile of the site (Ref. 13, pp. 1 through 3 of 23).

Access onto the site from surrounding areas is restricted by the presence of a maintained fence with locking gates. However, the fence does not enclose the whole site because of a railroad easement at the southeast corner. The eastern side of the property is not fenced (Ref. 3, p. 2 of 7). A security guard patrols the site during times when operations are shut down (Ref. 3, p. 2 of 7).

NYSDEC and U.S. Fish and Wildlife Service files indicated that there are no known occurrences of rare animals, plants or natural communities, and/or significant wildlife habitats on or within 200 feet of the site (Ref. 27, p. 1 of 4; Ref. 28, p. 2 of 5).

Air Pathway

Ambient air measurements, from Ebasco 1992 and the 1995 ARCS II site inspection, indicated an absence of organic vapors.

There are 40 workers on the site; 845 people residing in the 0 to 0.25-mile radius; 2,540 people residing within the 0.25 to 0.5-mile radius; 10,159 people in the 0.5 to 1-mile radius; 35,582 people in the 1 to 2-mile radius; 9,118 people within the 2 to 3-mile radius; and 16,987 people within the 3 to 4-mile radius (Ref. 3, p. 2 of 7; Ref. 13, pp. 1 through 3 of 23).

There are a number of sensitive environments within four miles of the site. There are approximately 17,078 acres of wetlands within a 4-mile radius of the site, as follows: 0 to 0.25 mile, 37.6 acres; 0.25 to 0.5 mile, 87.2 acres; 0.5 to 1 mile, 588.6 acres; 1 to 2 miles, 6,730 acres; 2 to 3 miles, 6,170.3 acres; and 3 to 4 miles, 3,464.6 acres (Ref. 33, pp. 1 and 2 of 6). There is one habitat for a candidate for the federal threatened or endangered species list (the black tern) within four miles of the site (Ref. 28, pp. 2, 4 and 5 of 5). A black tern habitat is located 1.5 miles west of the site (Ref. 14, p. 1 of 1; Ref. 28, p. 2 of 5). The Utica Marsh is state-designated land for wildlife management and is located 1.5 miles from the site (Ref. 14, p. 1 of 1; Ref. 18, p. 1 of 1). Because of their New York State freshwater classification (Class C) within the 4-mile radius of the site, the Erie Canal (0.35 mile from the site) and the Mohawk River (0.189 mile from the site) are state-designated sensitive areas for the protection or maintenance of aquatic life (Ref. 24, pp. 2 and 3 of 6; Ref. 25, p. 1 of 1).

Summary

The Universal Waste & Paper site has been an active scrap metal yard since 1957. Prior to 1957, the site was used by the City of Utica as a municipal landfill. Universal Waste, Inc. was formed in 1973 after the former operation was dissolved. Currently, Universal Waste, Inc. and its sister company, Utica Alloys, Inc. lease the property from Clearview Acres, Ltd. which purchased the property in 1984.

Several environmental investigations have been conducted on the site. PCB-contaminated soils were removed from the site by the owner after the initial identification of PCB-contaminated soil by the NYSDEC in 1977. Later investigations identified additional PCB-contaminated and TCE-contaminated soils on the site. Validated analytical results from 1992 indicate the presence of several inorganics and organics in addition to PCBs. No TCE contamination was identified by validated analytical data from Ebasco.

Analytical results indicate impacts to the soil and groundwater pathways. There is an observed release of two inorganics to the unconsolidated aquifer, but no organic compounds have been detected in groundwater. Although contamination has been identified in the overland flow segment, there is no data available to confirm contamination to the in-water segments of the surface water pathway. No releases to the air pathway have been documented.

The site is currently classified as a Class 2 site by the NYSDEC, which means that the site has confirmed hazardous waste disposal with significant threat to health and the environment. The NYSDEC is in the process of performing an off-site investigation around the property to determine the impact of off-site sources on the site, while an on-site investigation is being performed by Universal Waste, Inc. to determine the nature and extent of contamination.

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REFERENCE 1

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12-14-90
Vol. 55 No. 241

federal register

Friday
December 14, 1990

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REFERENCE 2

Environmental Protection Agency
Emergency Response (5204G)
EPA 540-R-94-0.
June 1994

EPA

Superfund Chemical Data Matrix

Rec'd

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PAGE 1 OF 1

REFERENCE 3

9/15/95 FR ARCS Universal Waste 85595 001000

Site visit J. Gilbert
M. Colantuono

WE: Sunny, clear cool crisp 60s/70s

6:05 Arrive Main
6:25 Arrive Tower Meet Marc & load
Begin mileage
9:55 Arrive site
10:00 check in
OVM calibrated

Many many piles of scrap metal
Drum carcasses stacked

Undeveloped prior to Universal Waste
C&D landfill to E
23 acre site
1978 DEC sampled stained @ under capacitors
Capacitors
Removed mid 80s PCBs stained soil
no other info available
isolated @.
Free flowing TCE in sewer upgradient
Dye test done by DEC: no upgradient
flow from site.
Sewer backups from PTOW.

REFERENCE # 3
PAGE 1 OF 7

9/15/95 FR Universal Waste 85595-001.000

ARCs site visit w/M Colantoni

TCE found in isolated spots

1992 Ebasco split samples w/ consultants

Scrap processing facility

working w/ DEC

UST fuel oil ~~Being~~ was removed

TCE tanks removed

TCE soil cleanup.

Work Plan for Remediation to involve soil, gw, sw, sediment

1 x 2000 g AST virgin TCE tanks

2 x 4000 g AST used TCE tanks

removed ~ 3 yrs ago.

Areas of stained soil is common w/scrap

Upgradient source of TCE

Used to buy 2k g/month TCE

now by 50 g/month

New cleaning Technique w/air permits

TCE stored in drums & sent to approved Transported TSDF. 3-4 drums stored on site 50 G

Several ASTs fuel oil, Kerosene

9/15/95 FR 85595-001.000 Universal Waste

Site fenced on 3 sides, Railroad has easement across. Night guard tours the facility at night. weekend guard

Metal Dipped into holding tanks of TCE to clean. Done inside

Working day 8-5, 7-4

workers = 40 maximum

Berm built by scooping excess dirt from scrap ~~metal~~ heaps

Utica Alloy Supplemental Investigation Work Plan William Cosulich Associates

No relationship to Clearview Acres.

Utica Alloys & Universal Waste leasing from Clearview Acres since ~ 1982

1957 scrap yard started

Industrial Zoning

Everyone on public water w/

Nearest residence between .5 miles to .5 to 1 mile N.

REFERENCE # PAGE 2 OF 7

9/15/95 FR Universal Waste 85595-001.000

AACs site visit w/M Colantuono

2-3' to water table.
Site gets muddy when rain, mud puddles

11:15 Background OVM at parking lot = 0 but bounces to 4
Respirable dust = 1

Industrial & Private haulers

Areas of stained soil just E of office bldg
Petroleum odor
11:23 Respirable dust = 1
muddy many areas of puddles
no sheen, no staining observed
some surface scum
11:30 OVM = 0 but bounces to 4
as it did in BG
According to Joe, site is muddy except during v.v. dry time.
All manner of scrap metal
car parts cable
tank carcasses pipes
old machinery
MW-6 in good condition

9/15/95 FR Universal Waste 85595-001.000

Tan 2x2 risn

Tanks certified clean before bought & brought on site

11:40 B-5 good condition
of old drums rusted
BZ = 0.0
Drum inside = 0.0
Respirable dust = 1

Any new drums need to be certified
of known contents before accepted

Foxes, deer, Turkeys have been seen on site

Northern portion of site brushy
small trees w/ isolated scrap
Some refuse glass, brick, metal in exposed
recently cleared area
B-4 good condition
needs PVC cap, lock
Photo

REFERENCE PAGE
of 3

9/15/95 FR   Universal Waste   85595-001.000
ARCs site visit   w/M. Colantuono

11:52 OVM BZ - 0
OVM Dirt : 0

Weeds growing @ some piles
Petroleum odor

Wastewater to POTW - no special permit needed

Biodegradable coolant
used for cooling machinery
crusher
12:00 OVM BZ. 0
Respirable dust = 1
chemically smell

Coolant pooled in 15x12
15x8

on Concrete pad
to be sumped up & put into POTW
Coolants from machining customer
on cutting chips
coolant washed off of chips by rain

9/15/95 FR   85595-001.000   Universal Waste

Chips from GE primarily, who uses biodegradable coolant.
Minimal Pb Cu
Lots Stainless Steel
ferrous
Some Al

Coolant not generated or used on site
Residual from customer

12:03 OVM BZ: 0
OVM Soil = 0
~~Resp~~

Inside Bldg : concrete floor
12:11 OVM BZ: 0
OVM yellow liquid = 0
Respirable dust = 0
Small stains on floor, oily
Outside NW corner
12:13 OVM BZ: 0
R Dust = 1

B-3 good condition, no protective cap

REFERENCE # 3
PAGE 4 OF 7

9/15/95 FR | Universal Waste | 85595-001.000

ARC site visit

w/ M. Colantuono

Chain link fence w/ B. wire on 3 sides

Bldg on NW for storage & sorting

Aluminum grinding -
Some drums/containers of grinding cutting on NW 10-15 yrs old.

Fuel oil AST for yard equipment

12:24 OVM BZ = 0

B-2 no longer in existence

SW ^engine^ Aircraft engine chips
recycled & goes back to jet engine

12:29 Respirable dust: 0

Only problem w/ wastewater to POTW is Ni
POTW monitors for organics & inorganics

9/15/95 FR | Universal Waste | 85595-001.000

- Capacitors ~~[illegible]~~ - 1 pile noticed
- Parts of XFMRs used to be gotten that were cleaned to specification
- They bought parts from people that serviced utility company
- May get an inadvertent shipment every once in a while

Batch Degreaser (TCE) vented to outside
lots of absorbent, run 2-3 X/month

12:43 OVM = 0
R. Dust = 1

Concrete floor in bldg

B-7 good condition

12:55 OVM = 0

According to Joe public comes onto site occ. to steal scrap metal

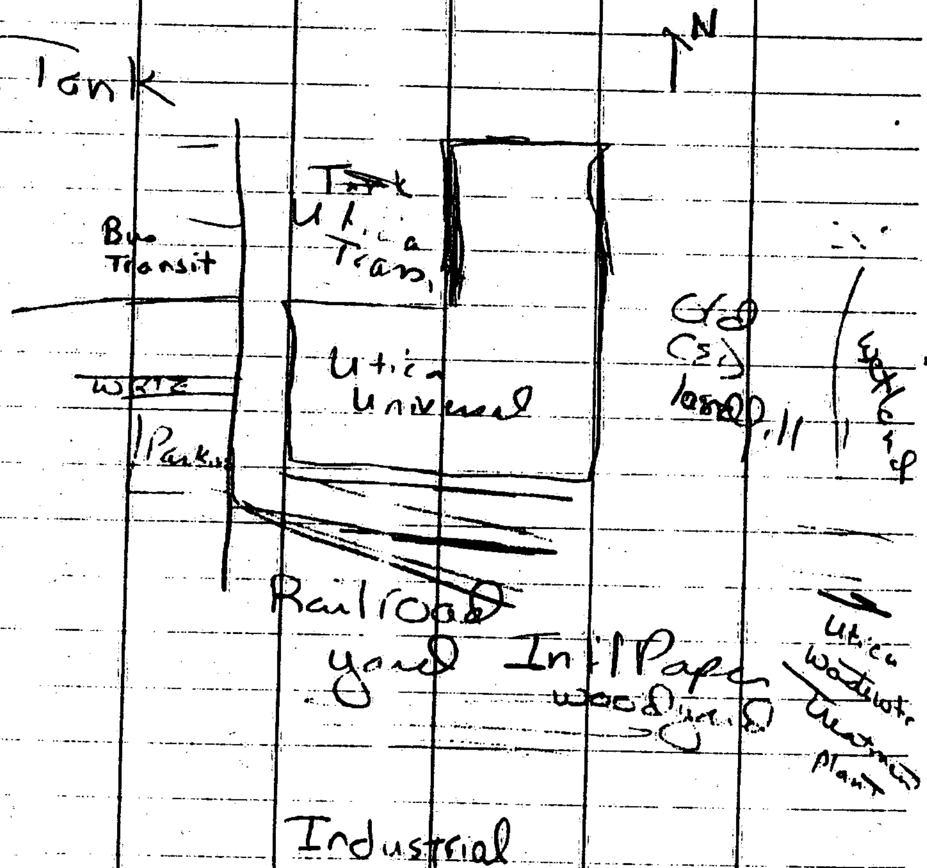
1:05 offsite reconnaissance of surrounding

REFERENCE # 3
PAGE 5 OF 7

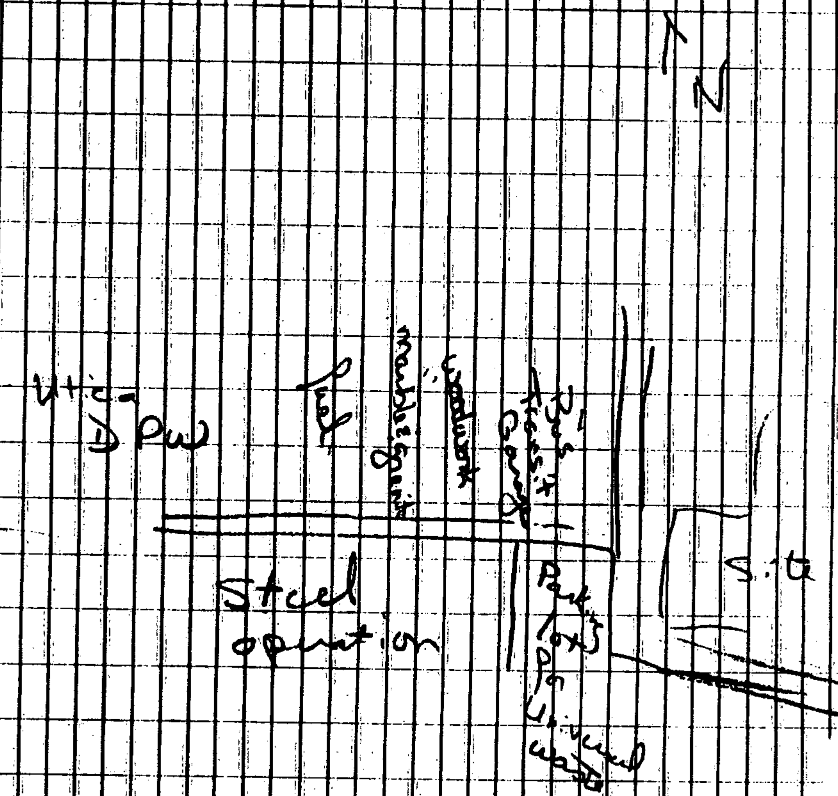
9/15/95 FR Universal Waste 85595-001.000

APC Site visit

w/ M. Colantuono



9/15/95 Universal Waste 85595-001.000



REFERENCE # 3
PAGE 6 OF 7

ARCs site Visit w/M. Colantuono

B-1 upgradient well in poor condition
PVC & Steel casing broken off @ ground level,
well open to public
w/ refuse @
1:27 OVM = 0 BG

General Notes:

- No air reading above background
- No haz waste observed except what is generated by batch degreaser
- Coolant observed spilled on ~~Fon~~ concrete pad.
- No sheen on puddles
Surface water ponding in puddles
Relatively flat site. No clear surface water Drainage direction
SW pools & infiltrates
- Stained soil observed but w/ muddy conditions extent was unable to be determined
No surface water bodies on site

Fenced but accessible
Security guard
No leachate seen
No stressed vegetation
Solid scrap in varying sizes from chips to Tanks
Unpaved except for a concrete pad (S of bldg) (E of warehouse)
Berm along back (E) of property
No onsite residents, no schools/daycare w/in 200 ft

Nearest residence to north at corner of Leyland & Rt 5
Nearest residence to south 1 block S. of Broad St
2:00 offsite - leave for office

5:25 Arrive Town

End Mileage ~~4~~301
94137

6:00 Leave Main

REFERENCE # 3
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REFERENCE 4

EPA WORK ASSIGNMENT NUMBER: 041-2Z00
EPA CONTRACT NUMBER: 68-W8-0110
EBASCO SERVICES INCORPORATED

ARCS II PROGRAM

FINAL
SCREENING SITE INSPECTION REPORT
UNIVERSAL WASTE, INC.
UTICA, NEW YORK
CERCLIS NUMBER: NYD980509335

APRIL 1993

NOTICE

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APRIL 1993

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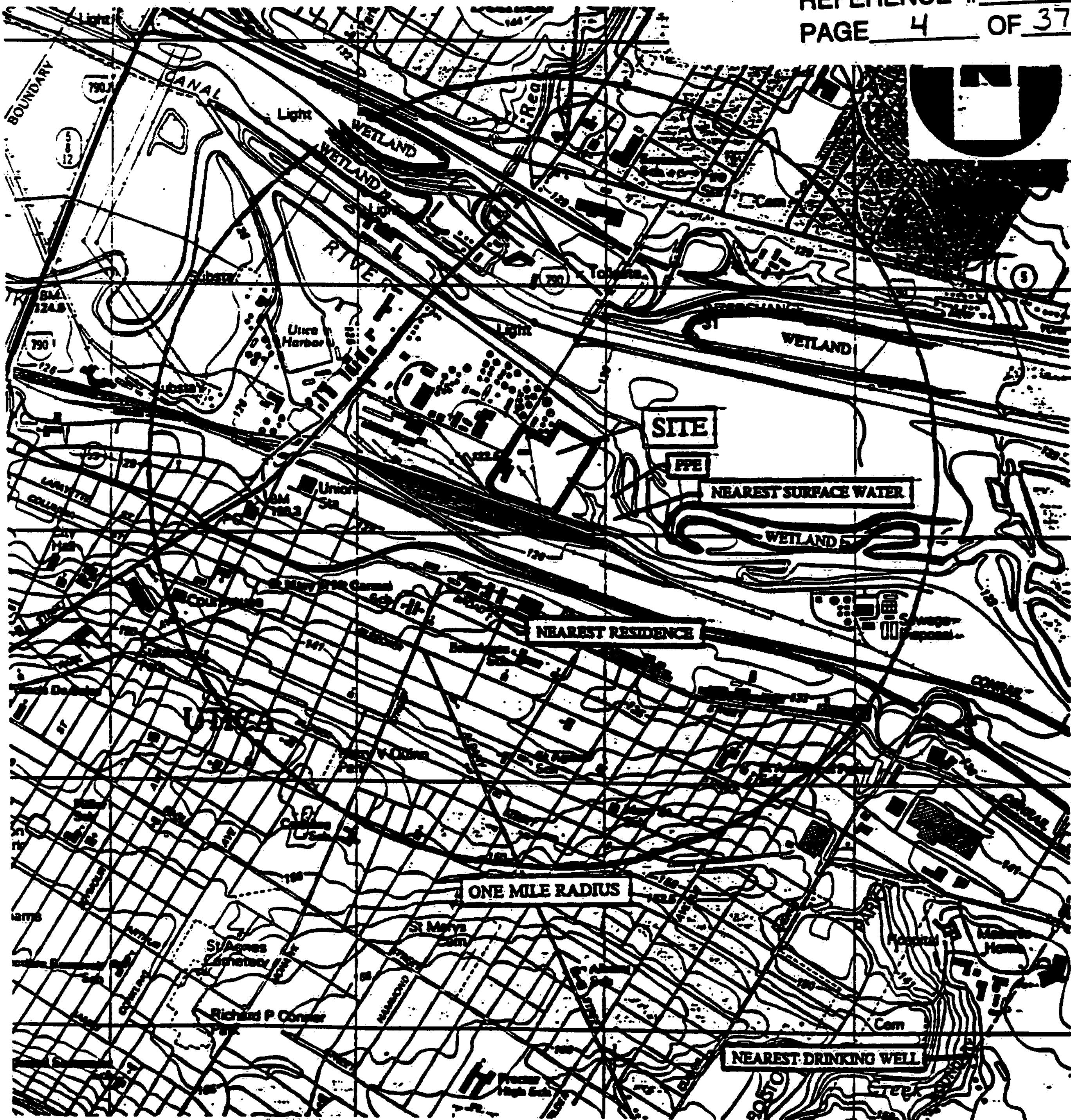
E1285.LYN

SUMMARY AND RECOMMENDATIONS

Universal Waste, Incorporated (CERCLIS #NYD980509335) is a 20-acre site located at the intersection of Leyland Avenue and Wurtz Avenue in the City of Utica, Oneida County, New York. The site is an active scrap metal yard. The site is located in an industrial area with some commercial properties nearby. The property is slightly lower topographically than the surrounding areas. The terrain on-site is somewhat uneven. The facility is completely fenced and access is controlled by a gate at the entrance. Figure 1 depicts the regional site location and Figure 2 depicts a detailed site sketch.

Before 1957, the property was owned by the City of Utica. Evidence exists that the site was used as a municipal dump during that time. This is disputed by the present owner. In 1957 the site was purchased by Universal Waste and Paper Inc. for use as a scrap metal yard. Universal Waste and Paper Inc. was liquidated in 1973 as part of the estate settlement of Mr. Dominic J'iampietro. Universal Waste, Inc. was organized in 1973 and entered into a lease agreement with Mr. J'iampietro's estate to operate a scrap metal salvage and reclamation facility on the site. Approximately one acre of the site was leased by Utica Alloys, Inc. which was a similar metal salvage operation. The property was purchased by Clearview Acres, Ltd. in 1984. Universal Waste, Inc. and Utica Alloys, Inc. continue to lease the property for their operations. During periods of heavy precipitation, storm sewers off site flood and spill onto the site. PCB oil from electrical transformers was released into the soil during salvage operations. In addition, trichloroethylene (TCE), which was used in degreasing procedures may have leaked into the soil. TCE has been found in the storm sewers. In 1991, the use of trichloroethylene was discontinued on site. Potential off-site sources of contaminants include a Niagara-Mohawk facility, Empire Recycling, and the former Westinghouse transformer repair shop. As the Universal Waste facility is located in an industrial area additional sources may now or have in the past existed in the vicinity.

In 1977, the New York State Department of Environmental Conservation (NYSDEC) collected six surface soil samples from the Universal Waste site, and one sediment sample from the nearby off-site ditch. In addition, two surface water samples were collected at the point where storm sewers from the site empty into the drainage ditch. These samples were analyzed for PCBs and TCE. Aroclor 1016/1242 and Aroclor 1254 (PCBs) were detected in concentrations well above three times background levels in two surface soil samples. Aroclor 1016/1242 and Aroclor 1254 were detected at concentrations of 8.0 ug/g and 60 ug/g, respectively, in the sediment sample. TCE was detected in both surface water samples at concentrations >1,000 ug/L. Soil contaminated with PCBs was voluntarily removed by the owner under the guidance of NYSDEC in 1980. No information was available regarding the identity of the contractor that conducted the removal nor the disposal area of the contaminated soil. A remedial investigation (RI) was conducted by Clayton Environmental Consultants, Inc. in 1984, as part of a voluntary action by Universal Waste. The study included the installation of seven (7) overburden monitoring wells. Fourteen (14) subsurface soil samples, nine (9) surface soil samples, seven (7) groundwater samples, four (4) surface water samples and two (2) sediment samples were collected. The surface water and sediment samples were taken from the sewer lines running under the site. Air sampling was also conducted. PCBs were detected in surface soils at a concentration of 36,000 ppm. TCE was detected in concentrations of 900 ppb and 6,480 ppb at two surface soil sampling locations. TCE was also detected in the upgradient storm sewer at 7,200 ppm and in the



BASE MAP IS A PORTION OF THE FOLLOWING USGS QUADRANGLES:
UTICA EAST, NY., 1983; SOUTH TRENTON, NY., 1983

1 .5 0 1
MILES

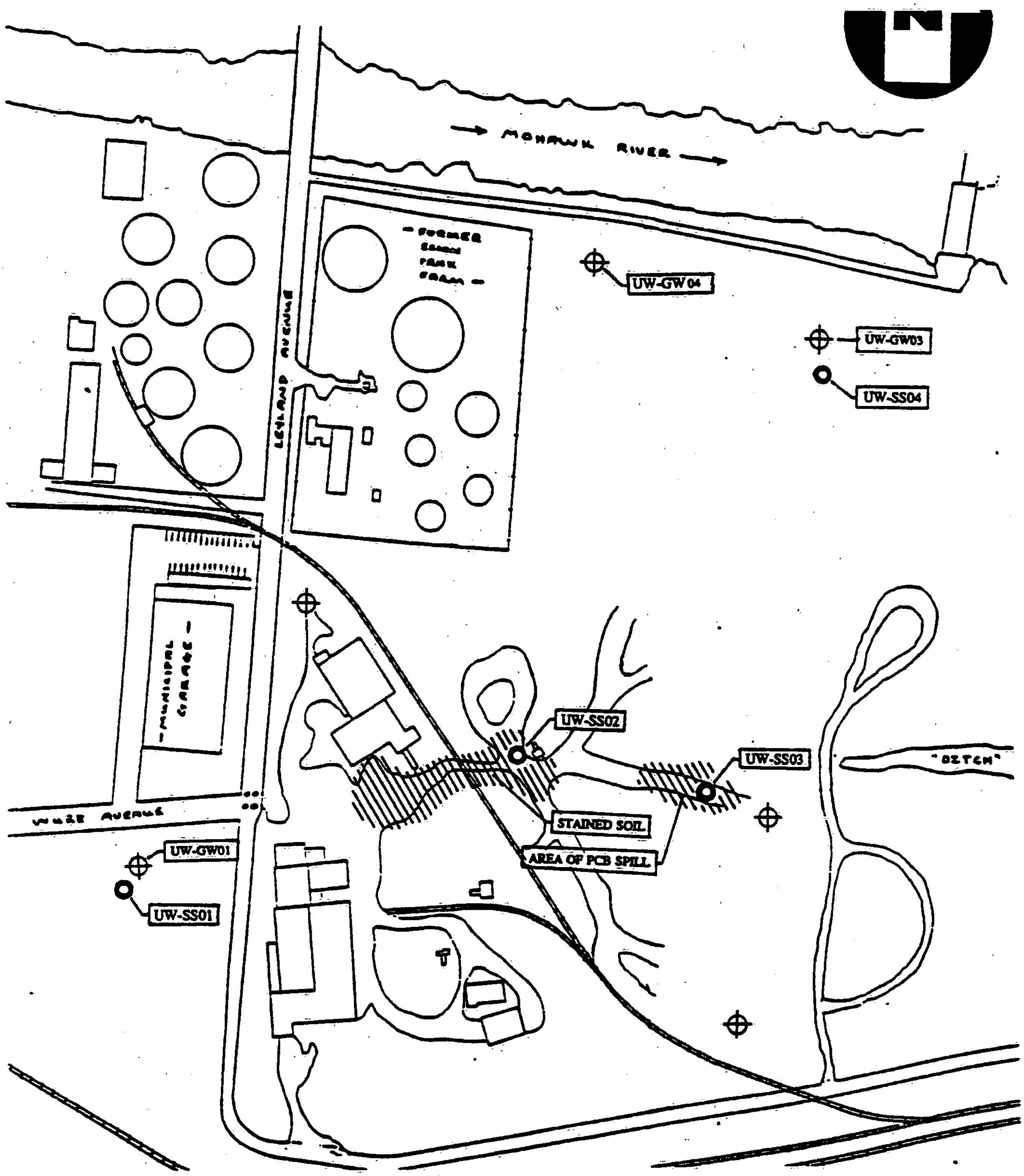
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10 000
FEET

QUADRANGLE LOCATION

Figure 1

SITE LOCATION MAP
UNIVERSAL WASTE
UTICA, NEW YORK

EBASCO



ADAPTED FROM SITE DIAGRAM BY CLAYTON ENVIRONMENTAL CONSULTANTS, 1984

NOT TO SCALE

Figure 2

SITE SKETCH
UNIVERSAL WASTE
UTICA, NEW YORK

EBASCO

downgradient storm sewer at 2,300 ppm. Sediment collected from the downgradient storm sewer contained 52, 000 ppm TCE and 1,100 ppb PCBs. TCE was detected in several subsurface soil locations. The highest concentration of TCE in the subsurface samples was found in the 4 to 6 foot interval at location No. 3. Ebasco Environmental conducted a site inspection in March, 1992. Four surface soil samples plus one duplicate sample and three groundwater samples plus one duplicate sample were collected. Numerous volatile, semivolatile, and inorganic substances were detected in surface soils at concentrations greater than three times background levels. PCBs and pesticides were also detected at concentrations greater than three times background levels. The substances detected in surface soils are too numerous to list here. Results of the laboratory analyses are presented in the Site Inspection Results section of this report. Groundwater samples collected at the Universal Waste site contained levels of chloroethane, acetone, 2-hexanone, dimethylphthalate, and benzo(k)flouranthene. Inorganic substances detected in the groundwater samples at concentrations greater than three times background levels included arsenic, barium, mercury, sodium, and thallium.

Overburden at the site consists of a layer of fill material approximately ten (10) feet thick. The fill layer may exhibit variable permeabilities. The fill overlies silt and clay soils. No information regarding permeability of the overburden was found. However, the silt and clay soils most likely have low permeabilities. Depth to groundwater ranges from 5 to 10 feet on site. Bedrock under the site consists of Utica Shale of the Middle Ordovician Lorraine Group. No drinking water wells are drilled into the overburden. The nearest well is located approximately 1.8 miles to the southeast of the site. The total population served by drinking water wells located within a 4 mile radius is 1,771. Areas served by private wells are at elevations greater than 90 feet above the site. No information regarding the depths of these wells was available. Topography of the areas suggests the wells are drilled into bedrock. The bedrock is therefore the aquifer of concern. The source of water for the Utica Municipal System is surface water intakes in Hinkley and Deerfield Reservoirs, located approximately 15 miles north of the Universal site.

The site lies in a slight topographic low. Runoff from surrounding roadways and overflowing storm sewers enters the site. There are no distinct drainage paths on-site. It seems likely that at least some of the runoff migrates into a drainage ditch, located approximately 600 feet from the area of stained soil, on the property adjoining Universal Waste to the east. Runoff moves approximately 400 feet through the ditch to the Mohawk River. The probable point of entry (PPE) of contaminants to surface water is where the ditch empties into the Mohawk River and is a total of 1,000 feet from areas of known contamination on-site. The Mohawk River is listed as a cool water fishery by the state of New York and is used for recreational fishing and boating. Several wetlands areas are located downstream of the site. The Mohawk River makes up the entire 15-mile surface water pathway. No surface water intakes are located along this pathway.

The nearest occupied residence is located approximately 1,800 feet south of the site. Approximately 13,544 persons reside within a 1-mile radius of the site, and 75,231 reside within a 4-mile radius. There are no schools, day care centers or residences within 200 feet of the site. There are approximately 20 workers on site. One wetlands area, covering approximately 12 acres, is located within a 1/2 mile radius of the site.

The presence of PCBs and numerous other organic compounds, as well as barium, have been detected in surface soils on site at levels in excess of three times background concentrations. The site is prone to flooding during times of heavy precipitation.

Barium was detected in the groundwater from the unconsolidated aquifer beneath the site. The absence of other contaminants in the groundwater raises doubt that the Universal site is the source of the contaminant. No samples were taken from the bedrock aquifer.

Sediment and water sampling of the storm sewers running under the Universal Waste site is recommended. Samples should be collected from the manholes at the intersection of Leyland and Wurtz Avenues, as well as from a background location upgradient of these manholes to determine if contaminants detected in the storm sewers and in the drainage ditch can be attributed to the site (maps of the storm sewer system must be obtained from the City of Utica Department of Public Works to aid in determining potential upgradient contaminant sources and access points to the system). Sediment and surface water sampling of the drainage ditch to the east of the site is also recommended. Samples should be collected immediately downgradient of the storm sewer outflow, as well as at a location near the Probable Point of Entry (PPE) to the Mohawk River. Sampling of sediments and surface water in the Mohawk River and in the nearby wetlands are recommended in order to determine the extent to which contaminant migration has occurred. Contaminated soil may be carried by runoff through the drainage ditch to the east of the site and to the Mohawk River. Contaminants may also migrate to the Mohawk River via groundwater flow through the overburden fill layer. Flow data should be obtained for the Mohawk River at a point near the PPE to allow a more accurate assessment of the potential threat to downstream surface water targets. The Mohawk River is used for recreational fishing and boating, and is considered a sensitive environment by the state of New York. Several wetlands areas lie downstream of the site and are potential targets of contaminant migration. Food Chain and Environmental Targets in the surface water pathway are pertinent to this investigation. A number of substances found on-site have both a high toxicity and high bioaccumulation. Examples of these are Aroclor 1254, cadmium, DDT, and benzo(a)anthracene. In addition, workers on site may be exposed to contaminants in the surface soils. There are no barriers preventing worker access to the contaminated areas. Migration of contaminants via the air pathway is not suspected. Real-time air monitoring conducted during the site reconnaissance and site sampling visit yielded no readings above background levels. Drinking water wells are not likely targets as they are located more than 2 miles from the site and at higher elevations (upgradient) of the site.

SITE ASSESSMENT REPORT: SITE INSPECTION

PART I: SITE INFORMATION

1. Site Name/Alias Universal Waste, Inc.

   Street Leyland Ave and Wurtz Ave

   City Utica State New York Zip 13502

2. County Oneida County Code ______ Cong. Dist. ______

3. EPA ID No. NYD980509335

4. Block No. ______ Lot No. ______

5. Latitude 43° 06' 20" N Longitude 75° 12' 43"

   USGS Quad. Utica East, New York

6. Owner Dominic J'iampietro Tel No. (315) 733-7561

   Street c/o Universal Waste, PO Box 53

   City Utica State NY Zip 13503

7. Operator Dominic J'iampietro Tel No. (315) 733-7561

   Street c/o Universal Waste, P.O.Box 53

   City Utica State NY Zip 13503

8. Type of Ownership

   X Private o Federal o State
   o County o Municipal o Unknown o Other

9. Owner/Operator Notification on File

   o RCRA 3001 Date ______ o CERCLA 103C o Date
   o None X Unknown

10. Permit Information

Permit	Permit No.	Date Issued	Expiration Date	Comments

11. Site Status

X Active o Inactive o Unknown

12. Years of Operation 1957 to Present

13. Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

(a) Waste Sources

Waste Unit No.	Waste Source Type	Facility Name for Unit
1.	Stained Soil	Stained Soil

(b) Other Areas of Concern

Identify any miscellaneous spills, dumping, etc. on site; describe the materials and identify their I locations on site.

PCB oil from electrical transformers leaked into the soil during past operations on site. The spill area is located on the east side of the active portion of the site. According to New York State Department of Environmental Conservation records, the contaminated soil has been removed. In addition, trichloroethylene (TCE) has been reported in the groundwater under the site. TCE was used in degreasing operations on site until 1991.

14. Information available from

Contact Luz Martinez Agency USEPA Tel. No. (212) 264-4561
Preparer Daniel E. White Agency Ebasco Environmental Date 9/22/92

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 1 Stained Soil

Source Type:

______	Landfill	X	Contaminated Soil
______	Surface Impoundment	______	Pile
______	Drums	______	Land Treatment
______	Tanks/Containers	______	Other

Description: An area of stained soil is located on the dirt access road near the center of the active portion of the site. A sheen was also noted on standing water in this area.

Hazardous Waste Quantity: Contaminated soil covers area of 120,000 square feet.

Hazardous Substances/Physical State:
Volatile Organics - liquid
Semi-volatile organics - liquid
PCB - liquid
Pesticides - liquid
Metals - solid

Ref No. 1, 21, 22

PART III: SAMPLING RESULTS

EXISTING ANALYTICAL DATA

The New York State Department of Environmental Conservation (NYSDEC) conducted sampling at the Universal Waste site in July, 1977. Six surface soil samples were collected from the site. One sediment sample and two surface water samples were collected from the drainage ditch to the east of the site. Analytical results are presented in Table 1. Surface soil samples from location LUZ-5 yielded concentrations of Aroclor 1016/1242 and Aroclor 1254 at 47,500 ug/g and 3,700 ug/g, respectively. Aroclor 1016/1242 was found at a concentration of 1,800 ug/g and Aroclor 1254 at 29,000 ug/g at location LUZ-6. These concentrations are at least 70 times greater than background levels. PCBs were also detected in the sediment sample. Aroclor 1016/1242 was found at a concentration of 8.0 ug/g and Aroclor 1254 at 60.0 ug/g. No background sediment sample was collected. Trichloroethylene (TCE) was detected in both surface water samples at concentrations greater than 1,000 ug/L.

Clayton Environmental Consultants conducted an environmental assessment of the site in 1984. Soil, groundwater, and surface water samples were collected. Sampling locations and results of laboratory analyses are shown in the following pages. Nine surface soil samples, four surface water (storm sewer) samples, two sediment samples, 14 sub-surface soil samples and seven groundwater samples were collected. Analytical results are presented in Table 2.

PCBs were detected in surface soil sampling location 1 at a concentration of 36,000 ppm, significantly higher than in any other sample taken. Trichloroethylene (TCE) was detected at concentrations of 900 ppb and 6480 ppb at sampling locations 5 and 6 respectively.

Results of surface water and sediment sample analyses again indicate the presence of PCBs and TCE. Concentrations of TCE in the upgradient side of the storm sewer were 7,200 ppm, while downgradient concentrations were only 2,300 ppm. It should be noted that sediment in storm sewer No. 4 contained TCE in concentrations of 52,000 ppm. PCBs were also detected in the storm sewer sediment. The higher concentration of TCE upgradient suggests either a second source (one other than Universal Waste) or that runoff from the site is reaching the upgradient storm sewers directly.

Trichloroethylene was detected in subsurface soil samples. Location 1 is considered a background sample as the boring was located off site and upgradient of the site. The highest concentration (32.6 ppb) of TCE at location 1 was found at a depth of 20-22 feet. TCE was detected at a concentration of 87 ppb at a depth of 4 to 6 feet at location No. 3. No significant concentrations of TCE were found in groundwater samples.

Ref. No. 2

Universal Waste Site
Table 1 - Results of 1977 NYSDEC Sampling.

Parameter	Units	Sample #: Matrix:	*LUZ-1 Soil	*LUZ-2 Soil	*LUZ-3 Soil	*LUZ-4 Soil	LUZ-5 Soil	LUZ-6 Soil	LUZ-7 Sed	LUZ-10 Water	LUZ-11 Water
Aroclor 1016/1242	ug/g		1.0	3.0	2.0	2.0	47500.0	1800.0	8.0		
Aroclor 1254	ug/g		7.0	50.0	4.0	2.0	3700.0	29000.0	60.0		
Aroclor 1260	ug/g		2.0		2.0						
Aroclor 1221	ug/g					<0.1	<0.1		<0.1		
Trichloroethylene	ug/L									>1000	>1000

Blank spaces indicate non-detects.
* Background samples

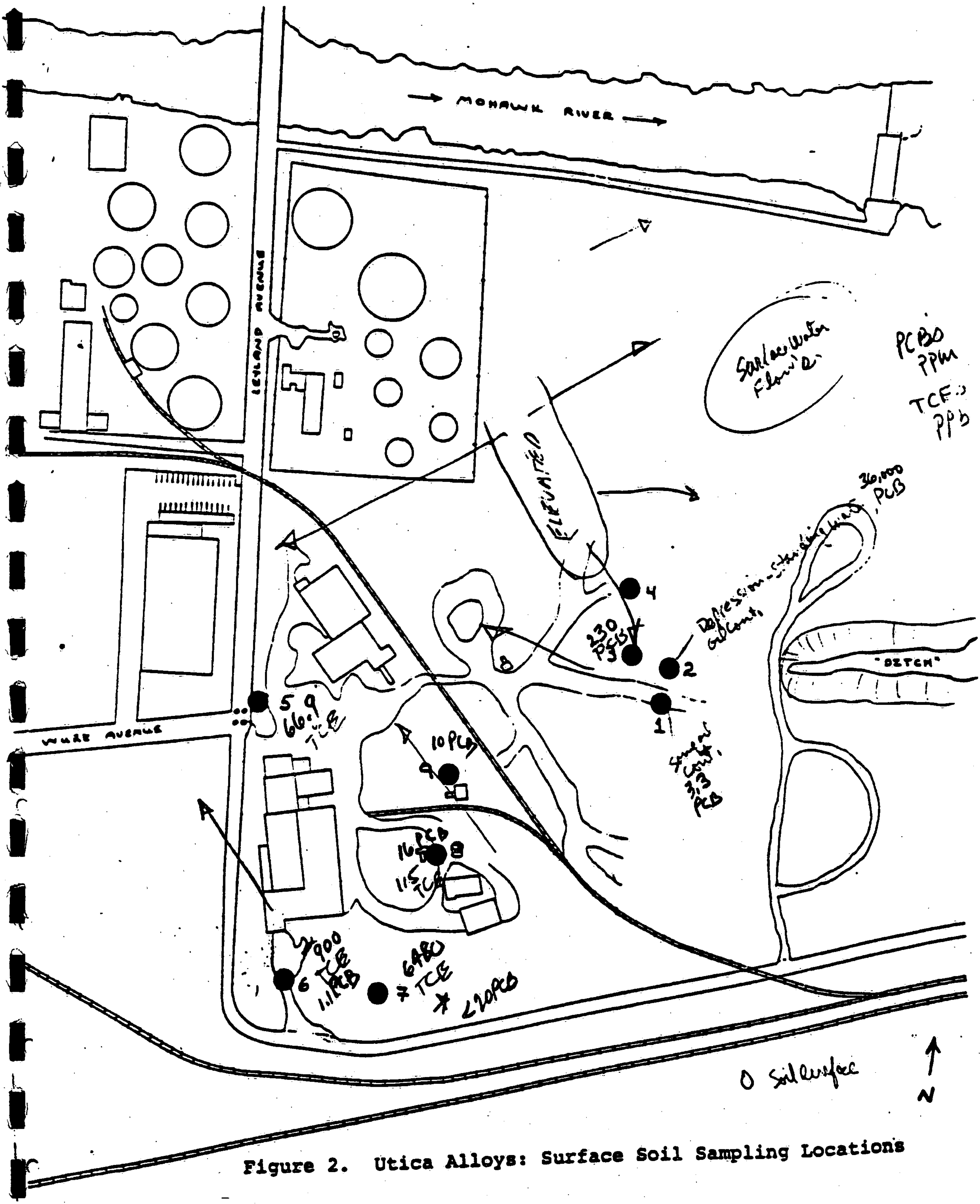


Figure 2. Utica Alloys: Surface Soil Sampling Locations

Table 2

~~Table A~~

Surface Soil Analysis for the Utica Alloys Project

Location Number	PCB* (ppm)	Trichloroethylene (ppb)	pH	Lead** (mg/L)	Barium** (mg/L)	Cadmium** (mg/L)
1	3.3	ND	7.4	0.9	5.9	0.07
2	36,000	ND	7.6	1.9	19	0.06
3	230	ND	7.2	2.3	8	0.09
4	lt 1.0	ND	8.0	2.9	14	0.1
5	lt 1.0	66.9	8.4	0.043	32	0.03
6	1.1	900	8.2	0.012	32	0.0023
7	lt 20	6480	8.3	0.01	30	0.007
8	16	115	7.0	0.37	32	0.09
9	10	ND	7.0	0.07	35	0.011

lt = less than value shown; only Aroclor type 1254 was observed

*ND = not detected; detection limit = 6.0 micrograms/kg
** analysis per EP Toxicity procedure; average of duplicate analysis

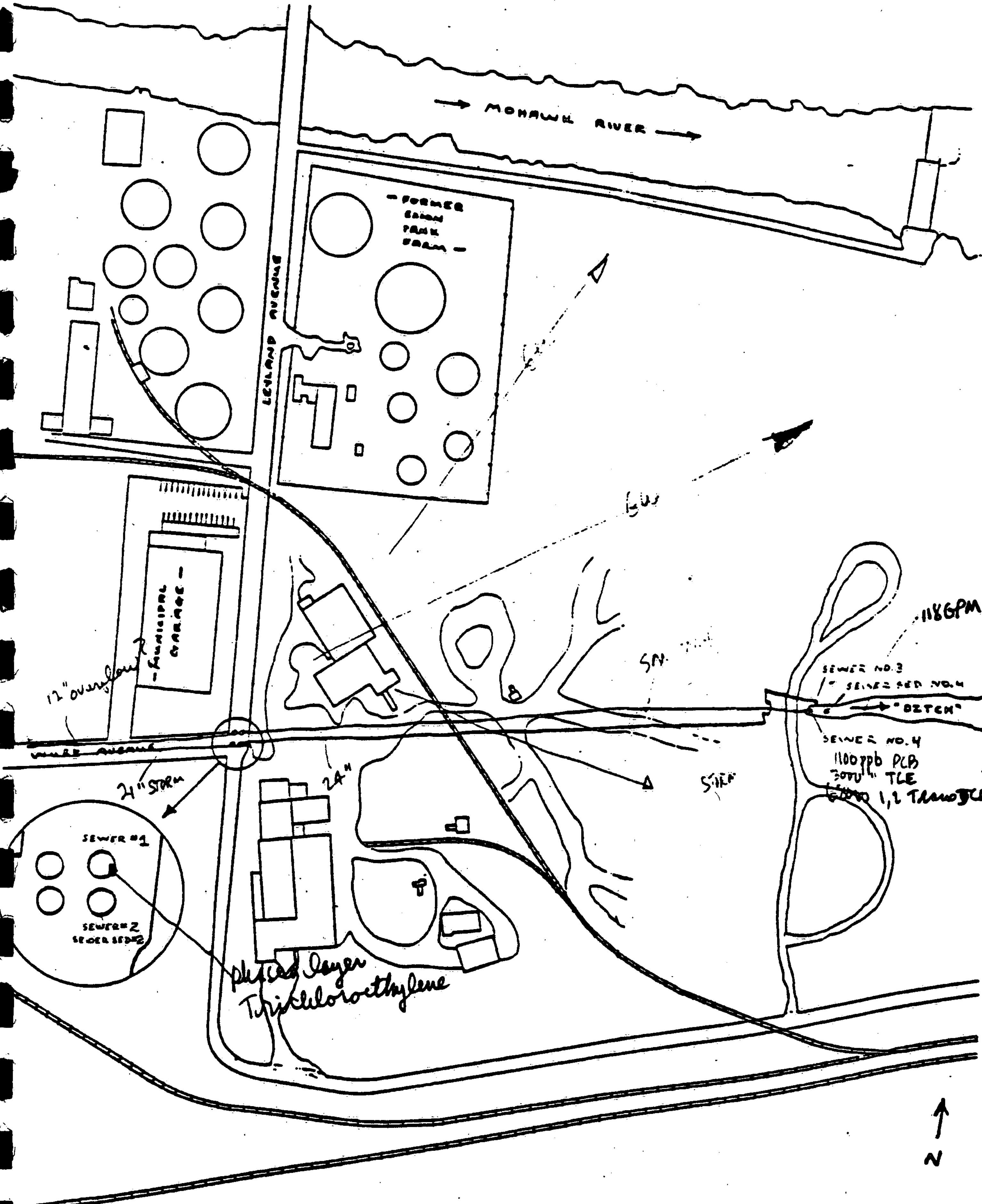


Figure 3. Utica Alloys: Sewer and Surface Waters Sampling

Table 3
~~Table B~~

Sewer Water and Sediment Analyses
for
Utica Alloys Project
Contaminant Concentration (ppm)

Parameter	Sewer* No.1	Sewer No. 2	Sewer No. 3	Sewer No. 4	Sewer Sed No. 2	Sewer Sed No. 4
PCB**(ppb)	lt 1.0	lt 0.1	lt 0.1	lt 1.0	730	1,100
Trichloroethylene	7,200	194	57	2,300	3	52,000
1,2-Trans dichloroethylene	ND	2.1	ND	ND	950	68
METALS:***						
Arsenic	0.009/0.0016	0.006	0.006	0.011		
Barium	3.5/1.1	2.0	2.4	2.6	30	29
Cadmium	0.017/0.017	0.0017	0.0005	0.0015	0.019	0.014
Chromium	0.0062/2.2	0.0043	lt 0.0020	0.023		
Lead	0.9/0.043	0.053	0.006	0.015	0.070	0.12
Mercury	lt 0.001	lt 0.001	lt 0.001	lt 0.001		
Selenium	0.01/lt 0.02	0.01	lt 0.01	0.01		
Silver	lt 0.05/lt 0.1	lt 0.05	lt 0.05	lt 0.05		

lt = less than value shown

*Sewer No. 1 sample contained two phases. Metals analysis was run separately on each fraction. Values shown are water phase/organic phase.

**Only Aroclor Type 1254 was detected.

***Values shown are averages from duplicate analyses.

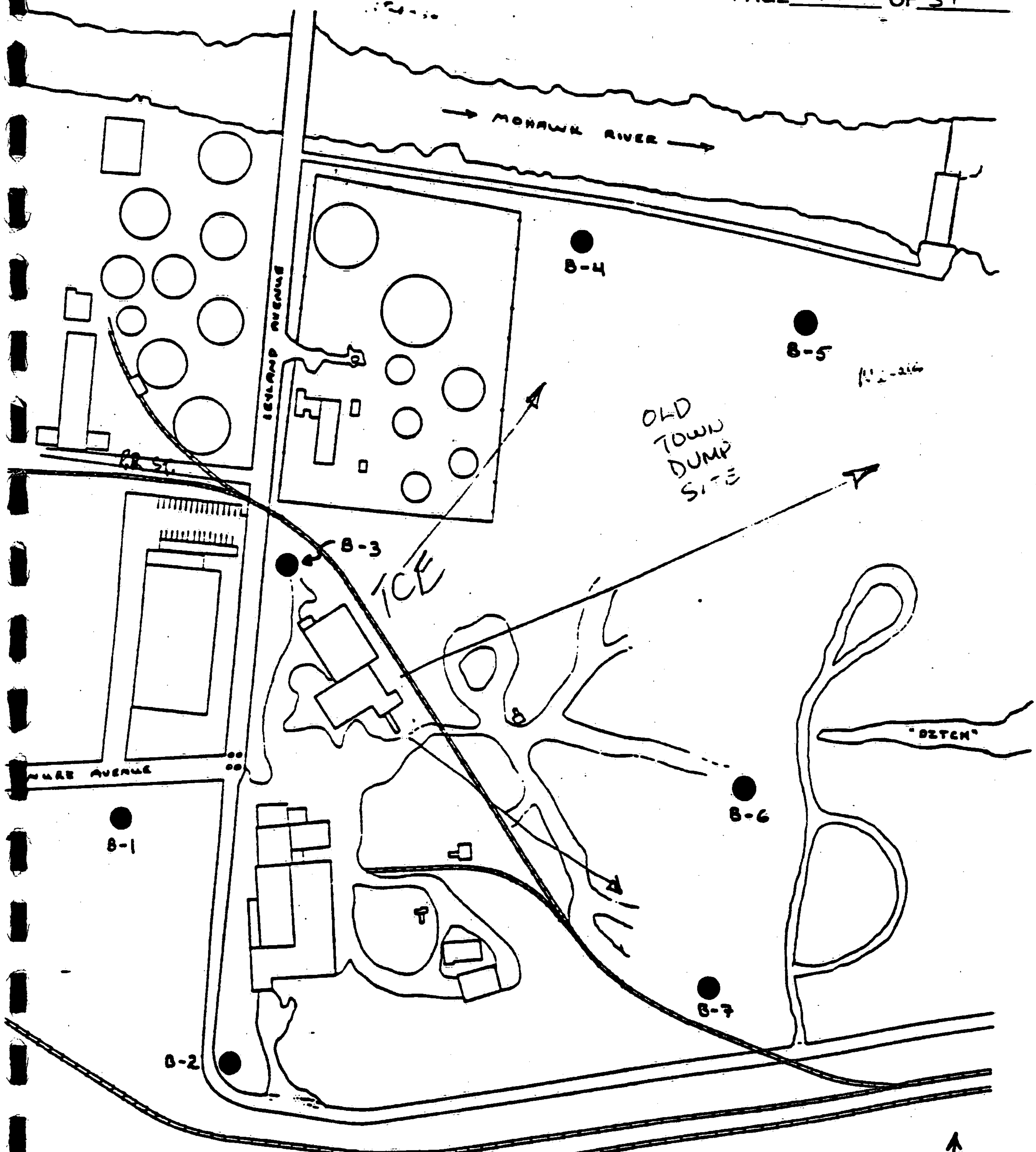


Figure 4. Utica Alloys: Well Locations (See also Appendix C)

Table 4
~~Table D~~

Analysis of Subsurface Soils
for
Utica Alloys Project

Location	Depth (ft.)	PCB (ppm)	Trichloroethylene (ppb)	pH	Barium* (ppm)	Cadmium* (ppm)	Lead* (ppm)
1	6-8	lt 1	4.4	6.9	5.9	0.0025	0.010
1	20-22	lt 1	32.6	6.8	6.1	0.010	0.043
2	6-8	lt 1	lt 4.4	6.4	4.0	0.0019	0.016
2	20-22	lt 1	54.3	6.1	1.4	0.0017	0.008
3	4-6	lt 1	87.0	6.3	0.8	0.0020	0.015
3	16-18	lt 1	55.1	6.0	0.6	0.0031	0.006
4	10-12	1.8**	lt 4.4	7.2	5.9	0.0040	0.030
4	18-20	lt 1	lt 4.4	6.9	4.8	0.0029	0.007
5	10-12	lt 1	9.0	6.4	6.2	0.04	0.5
5	20-22	lt 1	5.7	5.3	0.7	0.0020	0.008
6	10-12	lt 1	lt 4.4	7.0	0.8	0.0012	0.016
6	18-20	lt 1	5.2	6.5	0.4	0.0012	0.007
7	12-14	lt 1	lt 4.4	6.5	1.2	0.0028	0.008
7	26-28	lt 1	5.9	6.1	1.4	0.0029	0.007

*Values reported are averaged (rounded up) of duplicate EP Toxicity analyses.
**Value reported is average (rounded up) of duplicate analyses. Aroclor Type 1262.

Table 5
~~Table F~~

Analysis of Groundwater for Utica Alloys Project Concentration (ppm)

ppb ug/l Part 703 Class GA regulations

Analyte	Well Number 1	2	3	4	5	6	7	
PCB (Aroclor 1254)	0.0020	0.0017	0.0008	0.0003	0.10	0.018	0.017	0.0001 ppm 0.1
PCB (Aroclor 1262)	0.0011	0.0011	0.0005	0.0002	ND	0.0046	ND	
Trichloroethylene	lt 0.005	0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	0.01 / 10.0
Phenols	0.018	0.010	0.012	0.011	0.009	0.008	0.004	0.001 / 1.0
Sulfate	0.04	0.03	0.03	0.09	0.02	0.65	0.03	
Chloride	34	50	28	60	140	84	110	
Iron	31	80	34	34	85	73	20	
Manganese	2.5	2.7	0.90	3.0	2.6	6.7	3.4	
Arsenic	0.006	0.015	0.006	0.006	0.028	0.006	0.007	.025 25.0
Barium	2.0	2.9	1.4	5.7	3.5	3.9	3.1	1.0 1000.0
Cadmium	0.02	0.0041	0.021	0.0011	0.0094	0.0099	0.015	.01 10.0
Chromium	0.0038	0.029	0.014	0.012	0.022	0.021	0.014	Guide 50.
Lead	0.020	0.10	0.17	0.015	0.23	0.075	0.08	.025 25.0
Mercury	lt 0.001	lt 0.001	lt 0.001	lt 0.001	0.0016	lt 0.001	lt 0.001	.002 2.0
Selenium	0.01	0.01	0.01	0.01	0.01	0.02	0.01	.01 10.0
Sodium	36	32	18	66	180	250	43	
Silver	lt 0.05	lt 0.05	lt 0.05	lt 0.05	lt 0.05	lt 0.05	lt 0.05	
Chloroform	0.014	lt 0.005	0.04	lt 0.005	lt 0.005	lt 0.005	lt 0.005	0.1 100.0
Tetrachloroethylene	lt 0.005	0.010	lt 0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	
1,1,1-Trichloroethane	lt 0.005	0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	

PART IV: HAZARDOUS WASTE ASSESSMENT

GROUNDWATER

1. Describe the likelihood of the release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define supporting analytical evidence.

   Barium was found in groundwater samples at the site at levels exceeding three times the concentration in an upgradient well. No other contaminants were detected in the groundwater samples. While barium was present in surface soils on the site, the lack of other contaminants in groundwater raises questions as to whether Universal Waste is the source for this contaminant.

   Ref. No. 1, 2

2. Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.

   Overburden in the area consists of clayey and silty soils. Approximately 10 feet of the overburden is fill material. Standing water on site suggests the soil is of a low permeability. Groundwater from the overburden was not found to be used for drinking or other purposes. Overburden groundwater may migrate to the nearby Mohawk River, however. The depth to groundwater on site was found to be between 5 to 10 feet.

   Bedrock under the site consists of Utica Shale of the Middle Ordovician Lorraine Group. No information was available concerning the depth of drinking water wells. The nearest drinking water well is located 1.8 miles from the site. The remaining wells are all located greater than 2 miles from the site. All drinking water wells are located in areas of higher elevation (greater than 90 feet above the elevation of the site). The topography of the area suggests wells are drilled into the bedrock. The bedrock is therefore the aquifer of concern.

   Ref. No. 1, 2, 3, 4

3. Is a designated well head protection area within 4 miles of the site?

   There is no designated Well Head Protection Area (WHPA) within 4 miles of the site.

   Ref. No. 4

4. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

   Since contamination is believed to exist in the surface soil, the depth from contaminant source to groundwater is less than 5 feet.

   Ref. No. 1, 2, 3

5. What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the aquifer of concern?

   Overburden at the site consists primarily of silt and clay soils with occasional sandy layers. A layer of fill overlies the silt and clay soils at the site. While no values for permeability were found, the silt and clay layers most likely have low permeabilities.

   Ref. No. 2, 3

6. What is the net precipitation for the area?

   The net precipitation for the area is 43.44 inches.

   Ref. No. 5

7. What is the distance to and depth of the nearest well that is currently used for drinking purposes.

   The nearest drinking water well is approximately 1.8 miles to the southeast of the site. The depth of the well is not known.

   Ref. No. 6, 7

8. If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be located within the contaminated boundary of release.

   No drinking water wells are located within the contaminated boundary of release.

   Ref. No. 15

9. Identify the population served by wells located within 4 miles of the site that draw from the aquifer of concern.

Distance	Population
0-1/4 mi	0
>1/4-1/2 mi	0
>1/2-1 mi	0
>1-2 mi	2
>2-3 mi	803
>3-4 mi	966

   Ref. No. 6, 7, 8, 9, 10, 13, 14, 15

10. Identify uses of groundwater within 4 miles of the site (i.e. private drinking source, municipal source, commercial, irrigation, useable)

Groundwater is used for drinking water purposes in some areas within 4 miles of the site. Although no information was available concerning the depth of the wells, topography of the area suggests the wells are drilled into bedrock.

Ref. No. 6, 7, 8, 9, 10, 15

SURFACE WATER ROUTE

SURFACE WATER

11. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

PCBs and TCE are suspected of having been released to surface water. Both substances were found in sediment samples from a storm sewer which runs under the site and empties into a drainage ditch to the east of the property. Samples of sediment from the upgradient side of the storm sewer showed lower concentrations of TCE and PCBs. Both substances have been found on site in the past.

PCBs and several organic compounds were found in soils on site. While no distinct drainage pathways were observed, the site is topographically lower than the surrounding areas. The site is prone to flooding during periods of heavy precipitation. Runoff from the site may be carried to the drainage ditch on the east side of the site during these periods.

Ref. No. 1, 2

12. Identify the nearest downslope surface water, and if possible, include a description of possible surface drainage patterns from the site.

Runoff from the site enters a drainage ditch to the east of site. Runoff flows approximately 400 feet through the ditch to the Mohawk River. The total distance from areas of known contamination to the Mohawk River is approximately 1,000 feet.

Ref. No. 1, 7

13. What is the distance to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

The Mohawk River is approximately 1,000 feet from areas of known contamination on-site.

Ref. No. 1, 7

14. Define the floodplain that the site is located within.

Universal Waste is located on the 100-year floodplain.

Ref. No. 16

15. What is the 2-year 24-hour rainfall.

The 2-year 24-hour rainfall is 2.6 inches.

Ref. No. 5

16. Identify drinking water intakes in surface waters within 15 miles downstream of the site, or each intake identify; the distance from the point of surface water entry, population served, and stream flow at the intake location.

There are no surface water intakes along the 15-mile stream path.

Ref. No. 6

17. Identify fisheries that exist within 15 miles downstream of the point surface water entry. For each fishery environment specify the following:

Fishery	Waterbody Type	Flow (cfs)
Mohawk River	River	>10,000

Ref. No. 11

18. Identify sensitive environment that exist within 15 miles of the point of surface water entry. For each sensitive environment specify the following:

Environment	Waterbody	Flow (cfs)	Distance
Wetlands (UE-10)	River	unknown	0.1
Wetlands (UE-11)	River	unknown	1.0
Wetlands (UE-12)	River	unknown	1.7
Wetlands (IN-4)	River	unknown	5.3
Wetlands (IN-1)	River	unknown	7.0
Wetlands (IN-9)	River	unknown	9.2
Wetlands (IN-5)	River	unknown	11.0
Wetlands (IN-6)	River	unknown	11.9
Wetlands (IN-7)	River	unknown	13.3

Ref. No. 11

19. If release to surface water is observed or suspected, identify any intakes, fisheries, and sensitive environments from Question Nos. 16-18 that are or may be located within the contamination boundary of the release.

The Mohawk River is located approximately 1,000 feet from areas of known contamination on-site. The Mohawk River is a New York State regulated waterway for the preservation of aquatic life. Wetland (UE-10) is located approximately 0.1 mile downstream of the PPE. Both the Mohawk River and Wetland (UE-10) may be within the contaminated boundary of release.

SOIL EXPOSURE PATHWAY

20. Determine the number of people that occupy residences or attend school or day care on or within 200 feet of the site property.

No residences, schools, or day care centers were observed within 200 feet of the site.

Ref. No. 1

21. Determine the number of people that work on or within 200 feet of the site property.

Approximately 20 people work on the site.

Ref. No. 1

22. Identify terrestrial sensitive environments on or within 200 feet of the site property.

No terrestrial sensitive environments are found on or within 200 feet of the site.

Ref. No. 11

AIR ROUTE

23. Describe the likelihood of a release of contaminant to air as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

No evidence suggesting a release to air was found. Real-time air monitoring during the site inspection yielded no readings above background levels.

Ref. No. 1, 2

24. Determine populations that reside within 4 miles of the site

Distance	Population
0-1/2 mi	845
>1/4-1/2 mi	2540
>1/2-1 mi	10,159
>1-2 mi	35,582
>2-3 mi	9118
>3-4 mi	16,987
	75,231

Ref. No. 7, 8, 9, 10, 13, 14

25. Identify sensitive environments and wetlands acreage within 1/2 mile of the site

Sensitive Environment Type	Distance	Acreage
Mohawk River	1000 feet	N/A
Wetlands	.25 to .5 miles	~12 acres

Ref. No. 11

26. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of the air contamination from the release.

No release to air is suspected.

Ref. No. 1

27. If a release to air is observed or suspected, identify any sensitive environments, listed in Question No. 25, that are or may be located within the area of the air contamination from the release.

No release to air is suspected.

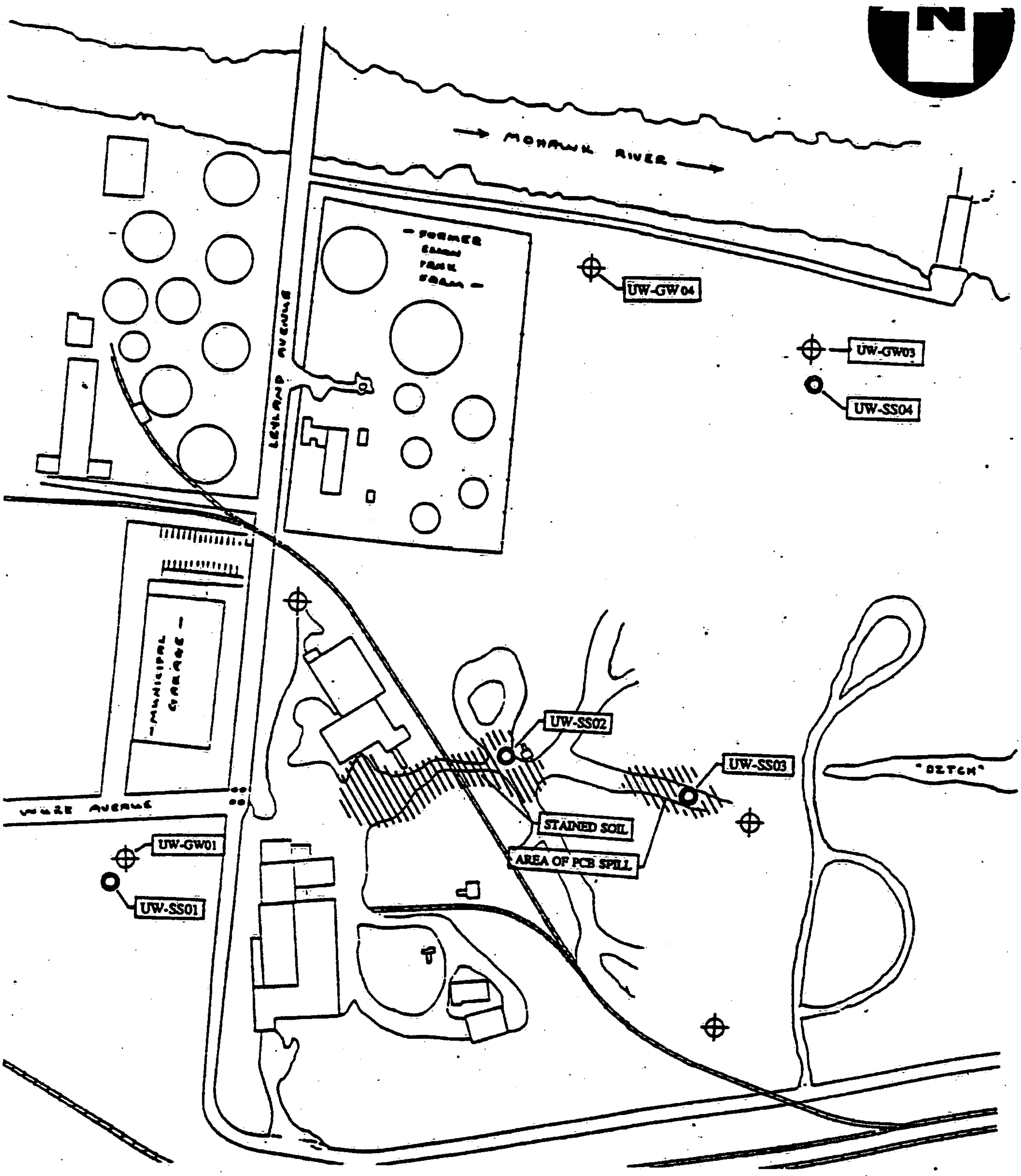
Ref. No. 11

SITE INSPECTION RESULTS

A Site Inspection of Universal Waste was conducted on March 9, 1992. Four surface soil samples and one duplicate soil sample and three groundwater samples and one duplicate groundwater sample were collected. Sampling locations are shown in Figure 3.

Results of the laboratory analyses of the soil samples are summarized in Tables 6, 7, 8, and 9. Benzene, toluene and xylenes were detected in concentrations greater than three times background level at location UW-SS02. Also, 2-Butanone was detected at concentration of 91 ug/l at this location, while it was not detected in the background sample. Numerous semi-volatile organic compounds were detected at levels well over three times background values. These include bis(2-chloroethyl)ether, nitrobenzene, 2,3-dichlorophenol, naphthalene, and benzo(a)pyrene. The inorganic substances barium, cadmium, chromium and cobalt were also detected at levels exceeding three times background values. Finally high concentrations of toxaphene and Aroclor 1254 were detected in soils.

Results of laboratory analyses of groundwater samples are summarized in Tables 10, 11 and 12. Analysis of groundwater samples yielded high concentrations of barium in the two downgradient wells. Concentrations in wells GW-03 and GW-04 were 1350 ug/L and 929 ug/L, respectively. These concentrations are over five times greater than those in the upgradient sample. The absence of other contaminants, especially semi-volatile compounds, should be noted.



ADAPTED FROM SITE DIAGRAM BY CLAYTON ENVIRONMENTAL CONSULTANTS, 1984

NOT TO SCALE

Figure 3

SAMPLING LOCATIONS
UNIVERSAL WASTE
UTICA, NEW YORK

EBASCO

Universal Waste Site

Table 6 - Concentrations of Target Compound List Volatile Organic Compounds Detected in Soil Samples.

Parameter (ug/l)	Sample ID: CLP Organic # Date: Dilution Factor:	UW-SS01* BGB32 3/9/92 1.0	UW-SS02 BGB33 3/9/92 1.0	UW-SS03 BGB34 3/9/92 1.0	UW-SS04 BGB35 3/9/92 1.0	UW-SS04D BGB36 3/9/92 1.0
Chloromethane				12J		13J
Bromomethane				12J		
Vinyl chloride				12J		
Chloroethane				12J		
Acetone						
Carbon disulfide				12J		
1,1-Dichloroethene				12J		
1,1-Dichloroethane				12J		
1,2-Dichloroethene (total)			4J	12J		
Chloroform				12J		
1,2-Dichloroethane				12J		
2-Butanone			91	12J		
1,1,1-Trichloroethane		13J		12J		13J
Carbon tetrachloride		13J		12J		13J
Bromodichloromethane		13J		12J		13J
1,2-Dichloropropane		13J		12J		13J
cis-1,3-Dichloropropene		13J		12J		13J
Trichloroethene		13J	10J	2J		13J
Dibromochloromethane		13J		12J		13J
1,1,2-Trichloroethane		13J		12J		13J
Benzene		13J	72	12J		13J
trans-1,3-Dichloropropene		13J		12J		13J
Bromoform		13J		12J		13J
4-Methyl-2-pentanone		13J				13J
2-Hexanone		13J				13J
Tetrachloroethene		13J				13J
1,1,2,2-Tetrachloroethane		13J				13J
Toluene			150			12J
Chlorobenzene		13J				13J
Ethyl benzene		13J	37			13J
Styrene		13J				13J
Xylenes (total)		13J	190			13J

J Estimated Concentration.
Blank space indicates non-detected.
* Background Sample.

Universal Waste Site

Table 7 - Concentrations of Target Compound List Semivolatile Organic Compounds Detected in Soil Samples.

Parameter(ug/L)	Sample ID: CLP Organic # Date: Dilution Factor:	UW-SS01* BGB32 3/9/92 1.0	UW-SS02 BGB33 3/9/92 10.0	UW-SS03 BGB34 3/9/92 10.0	UW-SS04 BGB35 3/9/92 1.0	UW-SS04D BGB36 3/9/92 1.0
Phenol		280J	3900J	4000J	410J	420J
bis(2-Chloroethyl) ether		420J	3900J	4000J	410J	420J
2-Chlorophenol		420J	3900J	4000J	410J	420J
1,3-Dichlorobenzene		420J	3900J	4000J	410J	420J
1,4-Dichlorobenzene		420J	3900J	4000J	410J	420J
1,2-Dichlorobenzene		420J	3900J	4000J	410J	420J
2-Methylphenol		420J	3900J	4000J	410J	420J
2,2-oxybis(1-Chloropropane)		420J	3900J	4000J	410J	420J
4-Methylphenol		420J	3900J	4000J	410J	420J
N-Nitroso-di-n-dipropylamine		420J	3900J	4000J	410J	420J
Hexachloroethane		420J	3900J	4000J	410J	420J
Nitrobenzene		420J	3900J	4000J	410J	420J
Isophorone		420J	3900J	4000J	410J	420J
2-Nitrophenol		420J	3900J	4000J	410J	420J
2,4-Dimethylphenol		420J	3900J	4000J	410J	420J
bis(2-Chloroethoxy) methane		420J	3900J	4000J	410J	420J
2,4-Dichlorophenol		420J	3900J	4000J	410J	420J
1,2,4-Trichlorobenzene		420J	3900J	4000J	410J	420J
Naphthalene		420J	3900J	4000J	410J	65J
4-Chloroaniline		420J	3900J	4000J	410J	420J
Hexachlorobutadiene		420J	3900J	4000J	410J	420J
4-Chloro-3-methylphenol		420J	3900J	4000J	410J	420J
2-Methylnaphthalene		420J	560J	4000J	410J	420J
Hexachlorocyclopentadiene		420J	3900J	4000J	410J	420J
2,4,6-Trochlorophenol		420J	3900J	4000J	410J	420J
2,4,5-Trichlorophenol		1000J	9400J	9700J	990J	1000J
2-Chloronaphthalene		420J	3900J	4000J	410J	420J
2-Nitroaniline		1000J	9400J	9700J	990J	1000J
Dimethylphthalate		420J	3900J	4000J	410J	420J
Acenaphthylene		67J	3900J	4000J	410J	180J
2,6-Dinitrotoluene		420J	3900J	4000J	410J	
3-Nitroaniline		1000J	9400J	9700J	990J	1000J
Acenaphthene		420J	3900J	4000J	410J	48J

J Estimated Concentration.
Blank space indicates non-detected.
* Background Sample.

REFERENCE # 4
PAGE 29 OF 37

Universal Waste Site
Table 7 (continued).

Parameter(ug/L)	Sample ID: CLP Organic # Date: Dilution Factor	UW-SS01* BGB32 3/9/92 1.0	UW-SS02 BGB33 3/9/92 10.0	UW-SS03 BGB34 3/9/92 10.0	UW-SS04 BGB35 3/9/92 1.0	UW-SS04D BGB36 3/9/92 1.0
2,4-Dinitrophenol		1000J	9400J	9700J	990J	1000J
4-Nitrophenol		1000J	9400J	9700J	990J	1000J
Dibenzofuran		420J	3900J	4000J	410J	45J
2,4-Dinitrotoluene		420J	3900J	4000J	410J	420J
Dietylphthalate		420J	3900J	4000J	410J	420J
4-Chlorophenyl-phenylether		420J	3900J	4000J	410J	420J
Flourene		420J	3900J	4000J	410J	120J
4-Nitroaniline		1000J	9400J	9700J	990J	1000J
4,6-Dinitro-2-Metylphenol		1000J	9400J	9700J	990J	1000J
N-Nitrosodiphenylamine		420J	3900J	4000J	410J	420J
4-Bromophenyl-phenylether		420J	3900J	4000J	410J	420J
Hexachlorobenzene		420J	3900J	4000J	410J	420J
Pentachlorophenol		1000J	9400J	9700J	990J	1000J
Phenanthrene		250J	920J	4000J	400J	1700J
Anthracene		63J	3900J	4000J	100J	420J
Carbazole		420J	3900J	4000J	61J	110J
Di-n-Butylphthalate		420J	3900J	2700J	81J	64J
Flouranthene		440J	1300J	670J	790J	2300J
Pyrene		530J	1300J	610J	900J	2300J
Butylbenzylphthalate		420J	630J	4000J	410J	420J
3,3'-Dichlorobenzidine		420J	3900J	4000J	410J	420J
Benzo(a)Anthrcene		230J	730J	4000J	600J	1500J
Chrysene		300	810J	480J	490J	1000J
Di-n-Octyl Phthalate		420J	3900J	4000J	410J	420J
Benzo(b)Flouranthene		510J	3900J	4000J	920J	1800J
Benzo(k)Flouranthene		150J	420J	4000J	260J	490J
Benzo(a)Pyrene		260J	620J	4000J	490J	980J
Indeno(1,2,3-cd)Pyrene		120J	450J	4000J	240J	380J
Dibenz(a,h)Anthracene		420J	3900J	4000J	53J	110J
Benzo(g,h,i)Perylene		64J	3900J	4000J	140J	230J

J Estimated Concentration.
Blank space indicates non-detected.
* Background Sample.

Universal Waste Site

Table 8 - Concentrations of Target Analyte List Inorganic Parameters Detected In Soil Samples.

Parameter(mg/kg)	Sample ID:	UW-SS01*	UW-SS02	UW-SS03	UW-SS04	UW-SS04D
	CLP Inorganic #:	MBGR32	MBGR33	MBGR34	MBGR35	MBGR36
	Date:	3/9/92	3/9/92	3/9/92	3/9/92	3/9/92
	Dilution Factor:	1.0	1.0	1.0	1.0	1.0
Aluminum		6220.00	13900.00	9280.00	96200.00	12100.00
Antimony				4.10J		
Arsenic		9.30	10.70	14.70	13.50	11.60
Barium		49.90	169.00	142.00	425.00	269.00
Beryllium		0.44	0.54	0.57	0.53	0.55
Cadmium		0.60J	6.00	3.40J	3.90J	2.80J
Calcium		8290.00	51500.00	38600.00	15200.00	17800.00
Chromium		13.30	68.30	63.60	36.20	36.90
Cobalt		6.00	14.90	21.70	9.00	11.80
Copper		53.00J	191.00J	1660.00J	177.00J	199.00J
Iron		14800.00	40900.00	67300.00	44000.00	88500.00
Lead		232.00J	280.00J	263.00J	1520.00	630.00
Magnesium		4070.00	8810.00	5420.00	3090.00	4750.00
Manganese		265.00J	849.00J	905.00J	697.00J	766.00J
Mercury			3.10		2.00	1.10
Nickel		24.70J	160.00J	118.00J	39.40J	53.50J
Potassium		1070.00	1850.00	2000.00	788.00	1050.00
Selenium			0.70J	0.74J	1.40J	1.00J
Silver			1.70J	0.79J	1.00J	
Sodium		186.00	449.00	228.00J	206.00	215.00
Vanadium		15.90J	29.70J	88.10J	30.50J	39.70J
Zinc		111.00J	472.00J	434.00J	857.00J	488.00J

J Estimated Concentration.
Blank space indicates non-detected.
* Background Sample.

Universal Waste Site
Table 9 - Concentrations of Target Compound List Pesticides and PCBs Detected in Surface Soil Samples.

Parameter (ug/kg)	Sample ID: CLP Organic # Date: Dilution Factor:	UW-SS01* BGB32 3/9/92 1.0	UW-SS02 BGB33 3/9/92 2.0	UW-SS03 BGB34 3/9/92 20.0	UW-SS04 BGB35 3/9/92 1.0	UW-SS04D BGB36 3/9/92 1.0
alpha-BHC			4.0J	41J	2.1J	2.2J
beta-BHC		2.2J	4.0J	41J	2.1J	2.2J
delta-BHC		2.2J	4.0J	41J	2.1J	2.2J
Lindane		2.2J	4.0J	41J	2.1J	2.2J
Heptachlor		2.2J	4.0J	41J	2.1J	2.2J
Aldrin		2.2J	4.0J	41J	2.1J	2.2J
Heptachlor epoxide		2.2J	4.0J	41J	2.1J	2.2J
Endosulfan I		2.2J	4.0J	41J	2.1J	2.2J
Dieldin		4.2J	7.7J	80J	4.1J	4.2J
4,4'-DDE		4.2J	7.7J	80J		
Endrin		4.2J	7.7J	80J	4.1J	4.2J
Endosulfan II		4.2J	7.7J	80J	4.1J	4.2J
4,4'-DDD		4.2J	7.7J	80J		170J
Endosulfan sulfate		4.2J	7.7J	80J	4.1J	4.2J
4,4'-DDT		4.2J	7.7J	80J	23J	40J
Methoxychlor		22J	40J	410J	21J	22J
Endrin ketone		4.2J	7.7J	80J	4.1J	4.2J
Endrin aldehyde		4.2J	7.7J	80J	4.1J	4.2J
Alpha-Chlorodane		2.2J	4.0J	41J	16J	15J
gamma-Chlorodane		2.2J	4.0J	41J		
Toxaphene		220J	400J	4100J	210J	220J
Arochlor-1016		42J	77J	800J	41J	42J
Arochlor-1221		86J	160J	1600J	83J	86J
Arochlor-1232		42J	77J	800J	41J	42J
Arochlor-1242		42J	77J	800J	41J	42J
Arochlor-1248		42J	77J	800J	41J	42J
Arochlor-1254		160J	4200J	56000J	270J	220J
Arochlor-1260		42J	77J	800J	41J	42J

J Estimated Concentration.
Blank space indicates non-detected.
* Background Sample.

Universal Waste Site

Table 10 - Concentrations of Target Compound List Volatile Organic Compounds Detected In Groundwater Samples.

Parameter (ug/l)	Sample ID: CLP Organic # Date: Dilution Factor:	UW-GW01* BGB25 3/9/92 1.0	UW-GW01-D BGB39 3/9/92 1.0	UW-GW03 BGB28 3/9/92 1.0	UW-GW04 BGB38 3/9/92 1.0
Chloroethane		10J		10J	10J
Acetone			10J		
2-Hexanone			10J		

J Estimated Concentration.
Blank space indicates non-detected.
* Background Sample.

Universal Waste Site

Table 11 - Concentrations of Target Compound List Semivolatile Organic Compounds Detected in Groundwater Samples.

Parameter (ug/L)	Sample ID: CLP Organic # Date: Dilution Factor:	UW-GW01* BGB25 3/9/92 1.0	UW-GW01-D BGB39 3/9/92 1.0	UW-GW03 BGB28 3/9/92 1.0	UW-GW04 BGB38 3/9/92 1.0
Dimethylphthalate		11J	10J	12J	11J
Benzo(k)Flourathene		11J	10J	12J	11J

J Estimated Concentration.
Blank space indicates non-detected.
* Background Sample.

Universal Waste Site

Table 12 - Concentrations of Target Analyte List Inorganic Parameters Detected In Groundwater Samples.

Parameter (ug/L)	Sample ID: CLP Inorganic # Date: Dilution Factor:	UW-GW01* MBGR25 3/9/92 1.0	UW-GW01-D MBGR38 3/9/92 1.0	UW-GW03 MBGR28 3/9/92 1.0	UW-GW04 MBGR37 3/9/92 1.0
Aluminum		137.00B	149.00B	188.00B	99.20B
Arsenic					9.50B
Barium		183.00B	184.00B	1350.00	929.00
Calcium		116000.00	115000.00	327000.00	223000.00
Iron		48200.00	47800.00	15200.00	21700.00
Magnesium		18800.00	18600.00	30300.00	39300.00
Manganese		3790.00	3730.00	493.00	2290.00
Mercury				.81J	
Nickel		11.00B	7.30B		
Potassium		651.00B	456.00B	12200.00	1900.00B
Sodium		17500.00J	17200.00J	24300.00J	52500.00J
Thallium				3.40BJ	
Zinc		15.00B	8.50B	15.50B	6.60B

J Estimated Concentration.

Blank space indicates non-detected.

* Background Sample.

REFERENCES

1) Field Notes of Site Inspection by Daniel E. White (Ebasco) dated March 2, 1992 and March 9, 1992.

2) Report of the Waste Management Study at Utica Alloys, Inc., Utica, New York, Clayton Environmental Consultants, March 21, 1984.

3) Boring Logs of Monitoring Wells Installed on the Universal Waste Site, Empire Soil Investigations, Inc. Dated October 15 to October 20, 1983.

4) Record of Telephone Conversation, Discussion between Larry Rinaldo (USEPA) and Rosemary Ottevaere (Ebasco) dated April 7, 1992.

5) Memorandum to Daniel E. White (Ebasco) from Keith Ocheski (Ebasco) dated June 2, 1992.

6) Record of Telephone Conversation, Discussion between Don Weimer (Utica Board of Water Supply) and Daniel E. White (Ebasco) dated February 24, 1992.

7) Utica East, New York Quadrangle, United States Geological Survey, 1983.

8) Utica West, New York Quadrangle, Untied State Geological Survey, 1955.

9) Oriskany, New York Quadrangle, United States Geological Survey, 1955.

10) South Trenton, New York Quadrangle, United States Geological Survey , 1983.

11) Letter to Daniel E. White (Ebasco) from John F. Sandwick, Jr. (NYSDEC) dated January 16, 1992.

12) Data Calculation Sheet for Wetlands Acreage by Daniel E. White (Ebasco) dated January 20, 1992.

13) 1980 Census of Population, United States Department of Commerce.

14) Data Calculation Sheet for Population by Daniel E. White (Ebasco).

15) Data Calculation Sheet for Population Served by Well Water by Daniel E. White (Ebasco) dated July 15, 1992.

16) Record of Telephone Conversation, Discussion between Jessica Breiten (Herkimer-Oneida Counties Comprehensive Planning Program) and Daniel E. White (Ebasco) dated August 13, 1992.

17) Geologic Map of New York, Hudson-Mohawk Sheet, 1970.

18) Superfund Chemical Data Matrix, dated October 29, 1991.

19) Hazardous Waste Site Tentative Disposition, USEPA, dated April 30, 1980.

20) Results of Laboratory Analyses of Samples Collected at Universal Waste, NYSDEC, dated 1977.

21) Results of Laboratory Analyses for Organic Substances in Samples Collected on March 9, 1992.

22) Results of Laboratory Analyses for Inorganic Substances in Samples Collected on March 9, 1992.

REFERENCE 5

Clayton Environmental Consultants, Inc.
25711 Southfield Road, Southfield, Michigan 48075, Telephone 313 424-8860

Revised Report
of the
Waste Management Study
at
Utica Alloys, Inc.
Utica, New York
CEC Job No. 11949-0381-WMS
March 21, 1984

Rec 3/27/84
by MPM

Waste Management Study
at
Utica Alloys, Inc.
Utica, New York

CEC Job No. 11949-0381-WMS

Clayton Environmental Consultants, Inc.
25711 Southfield Road, Southfield, Michigan 48075, Telephone 313 424-8860

1.0 INTRODUCTION

Under an executed Agreement and Determination [with the New York Department of Environmental Conservation (N.Y.D.E.C.) index number 427T080582], Utica Alloys, Inc. and others were requested to "retain a non-interested third party private consultant for the purpose of providing the field investigation, proposal, and report." Pursuant to this request, Utica Alloys, Inc. retained Clayton Environmental Consultants, Inc. to perform this effort.

Generally stated, the goal of this effort was to identify any threat to the environment posed by the prior disposal of industrial and hazardous wastes at and in the vicinity of the site.

2.0 BACKGROUND

The area under investigation (hereafter referred to as "Utica Alloys") comprises approximately 23 acres, and is occupied by Universal Waste, Inc. and Utica Alloys, Inc. which are tenants of the Key Trust Company, as Trustee under the will of Dominick Jiampetro.

Universal Waste, Inc. is engaged in the buying and selling of paper, metal, and other waste materials. Utica Alloys, Inc. is engaged in the buying, selling, processing, and reclaiming of high- and low-temperature alloys, and non-ferrous metals. The operations at the site are essentially those of a ferrous scrap manufacturer (SIC Code 5093).

As far as can be determined at this time, uses of the property prior to occupancy by the scrap processing operations may have included tnat of a brickyard, and portions of the property may have been used as a domestic landfill.

At one time, PCB electrical equipment was deposited on the site, some of which later developed leaks. Mr. Joseph Jiampietro has stated that this equipment and contaminated soil was cleaned up in conformance with N.Y.D.E.C. regulations shortly after discovery of the spilled material.

There are no records indicating this site was used for hazardous waste disposal. However, there are reports (per discussions with N.Y.D.E.C. and Utica Alloys personnel) that various areas (southwest portion) may have received spills of trichloroethylene degreaser sludge; visual evidence that several areas, primarily in the south-central area, have received discharges of waste lubricating oils; and one area, mentioned above, received a spill of PCB.

How do we tell these apart?

Trichloroethylene has been used by the facility to degrease metal turnings in a Detrex Vapor Spiral Degreaser. Historically, sludge generated from this process was placed in drums and stored in an area near the southwest corner of the property. This procedure may have resulted in spills of the material to the ground in this area. All drums of this material have been removed and disposed of in a secure landfill.

Presently the degreasing unit is equipped with two stills which recycle clean trichloroethylene back into the system. Bottoms from these stills is directed to a "cooker" type still which recovers additional trichloroethylene for use in the system, and reduces the trichloroethylene in the sludge to less than 0.5%. The sludge is then pumped into a 4,000-gallon storage tank for removal by bulk tanker. Each lot is analyzed in order to properly classify it for transportation and disposal.

3.0 SITE DESCRIPTION

The site, located in the northeast portion of Utica, New York, is situated in a (relatively) lightly populated industrial/commercial area immediately south of the Mohawk River. The river, which flows west to east, is interrupted by a flood control structure located approximately in line with the eastern boundary of the Utica Alloys property.

Immediate neighbors include the municipal bus garage to the west, a large railroad switching yard to the south, a former Exxon tank farm (built in the 1940s, and abandoned in 1972) to the northwest, and the Mohawk River a short distance to the north. Leyland Avenue borders the property along the west side, and a paved road borders the property along the south side. Property immediately to the east is vacant.

A storm sewer extends under the property from Wurz Avenue to the "respondent ditch" on the opposite side of the site. An overflow for the sanitary sewer line reportedly parallels the storm line under the property. Observations made during the investigation (and later confirmed with the city engineering office) indicated that a second line did exist; however, it was operating as an overflow or drain for the sanitary sewer manhole on Leyland Avenue. The outfall of this line (also discharging to the "respondent ditch") was blocked by broken brick, and appeared to be discharging primarily groundwater. Its apparent flowrate was not significantly affected by the rainstorm which occurred during the field investigation.

Many sewers in the area were modified and/or closed off in the late 1960s when a new sanitary system, which flows around the Utica Alloys's facility (west and south sides) to the municipal treatment works (located east of the site), was constructed (per conversation with City Engineering office). Prints of these sewers are included in Appendix B to this report.

Operations on the property are primarily located in the southern half of the property, and along the western side, south of the tank farm. The northern portion of the property, east of the tank farm, is heavily overgrown with brush, grasses, and trees. It was necessary to "bulldoze" roads to access the locations for monitoring Wells No. 4 and No. 5, which are discussed later in this report.

The dominant soil association of the Utica area is the Howard-Phelps which is a medium to strongly acidic gravelly loam with neutral black-structured clayey lower subsoils, developed from calcareous glacial outwash (N.Y. Cooperative Extension, 1970). This soil is composed of 75 to 90% gravelly Palmyra which has a decreasing acidity with depth ranging from a pH of 5 to 7.6. This soil resulted from glacial outwash, and the predominant parental material is a mixture of gray shale, sandstone, and limestone. It is considered a gray, brown, Podzolic soil which demonstrates excessively good to moderately good drainage (N.Y. Cooperative Extension, 1970). A generalized soils map is located in Appendix A.

A site layout diagram is provided as Figure 1.

Discussions regarding the site-specific geology are discussed in Section 4.4.1 of this report.

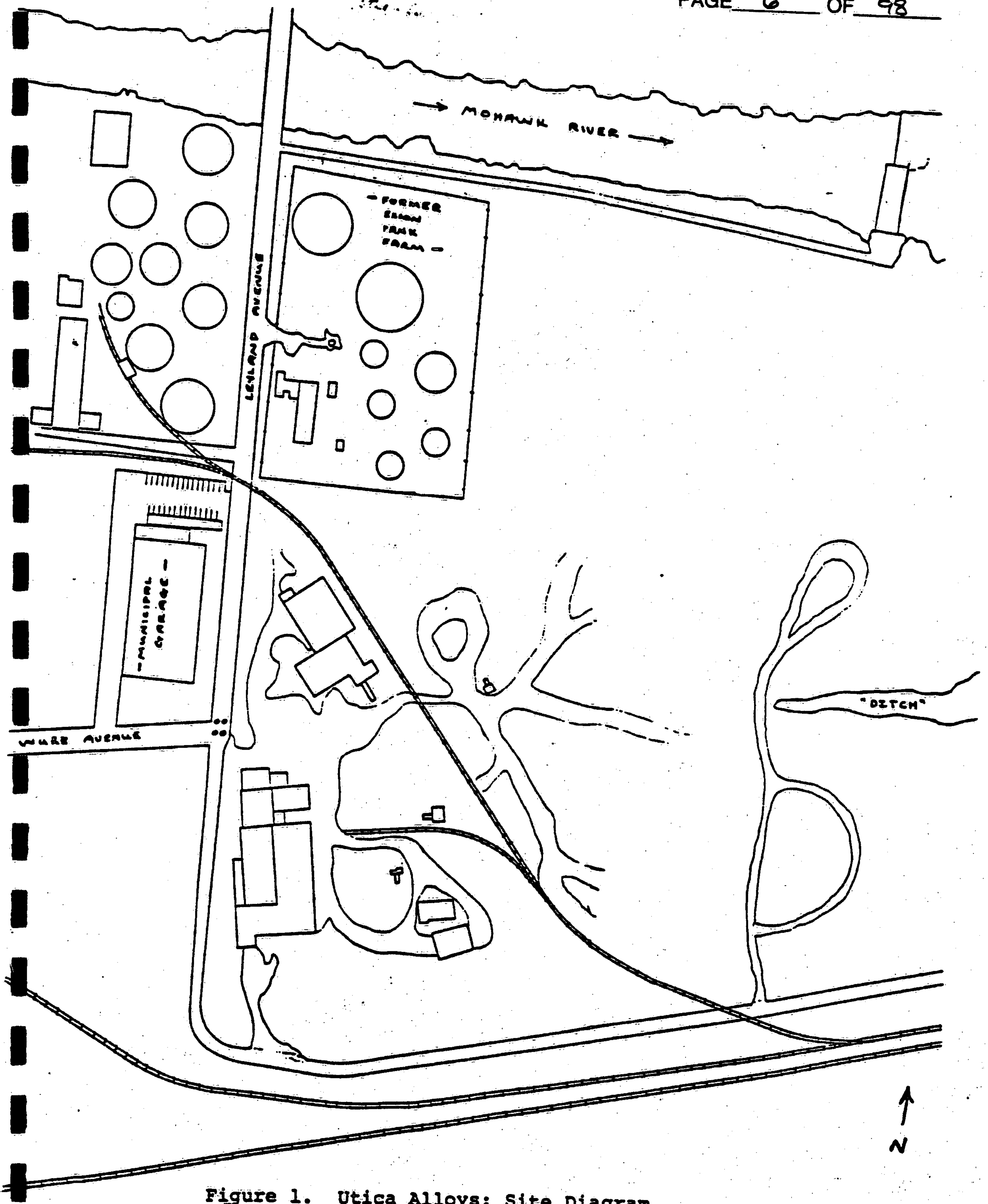


Figure 1. Utica Alloys: Site Diagram

4.0 THE INVESTIGATION—FINDINGS

4.1 GENERAL

The goal of this effort, as stated previously, was to identify any threat to the environment posed by the prior disposal of industrial and hazardous wastes at and in the vicinity of the site. To accomplish this goal, the field portion of this effort included investigation of the potential contamination of ambient air, surface and subsurface soil, surface and groundwater, and underlying sewers by past activities conducted onsite.

The field effort included installation and sampling seven groundwater monitoring wells (with continuous split spoon sampling), sampling of surface soil in nine locations, sewer sampling at two locations "upstream" and two locations "downstream" of the property, sediment sampling of the "respondent ditch," and ambient air sampling upwind and downwind of the site. Specific procedures used during these tasks are fully described in the appendices to this report.

Well installation and sampling efforts were conducted from August 15 through August 22, 1983. Clayton personnel present during these activities were Messrs. Robert A. Garrett and Matthew D. Jerue. Well installation and split spoon sampling efforts were performed by Empire Soils Investigations, Inc. personnel under the direct supervision of Clayton personnel. Representatives of the N.Y.D.E.C. present during various phases of the field investigation included Messrs. Kevin Walter, P.E., Chief, Bureau of Technical Services; Mark P. Millspaugh, Senior Sanitary Engineer, Division of Hazardous Waste Enforcement; Jim Eckl, Wesley Gamble, and Tom Keelty.

4.2 SURFACE SOIL INVESTIGATION

Nine surface soil samples were obtained from the areas indicated in Figure 2. These locations were chosen in the field in cooperation with the onsite N.Y.D.E.C. representative to include those areas with visible contamination.

Samples were obtained using a hand auger. Four to six borings were conducted (to depths discussed below) in the immediate area of the sampling location. The material from each of these borings was combined in the field, and a portion of this composite was obtained to represent surface soils at that location. All sampling equipment was thoroughly cleaned (with lab grade Alconox) and rinsed (with deionized water) between locations.

The surface soil sampling locations are described below. The borings were made to a depth of 18 inches or until solid obstructions were encountered.

Location 1. Five borings to a depth of 18 inches were made in an area approximately 5 yards west of Well No. 6. This area was covered by what appeared to be small pieces of printed circuit board. Slight oil contamination was evident.

Location 2. Four borings to a depth of 12 inches were made in an area approximately 15 yards north and east of Well No. 6. This area was slightly lower than the surrounding area and was visibly oil contaminated. Borings were conducted in saturated soil near the eastern edge of the standing water in this area.

Location 3. Four borings to a depth of 8 inches were made in an area approximately 20 yards north and slightly west of

Well No. 6. This area was opposite Location No. 2 relative to the standing water. The soil was saturated in this area also.

Location 4. Five borings to a depth of 18 inches were made in an area just off (west) of the road, approximately 30 yards east of the (apparently) abandoned crane. This area was dry, and covered with a thin layer of crushed stone.

Location 5. Six borings were made to a depth of 18 inches in an area approximately 25 feet east of Leyland Avenue and 30 feet north of the front entrance to Utica Alloys. This area was chosen to represent background levels.

Location 6. Two 10-inch and two 8-inch borings were made in a visibly oil-contaminated, drum storage area directly outside the southwest loading dock. This location was approximately 20 yards east and north of Well No. 2.

Tne above locations were sampled on August 18, 1983. Locations No. 7 through No. 9 were sampled on August 19, 1983.

Location 7. Four borings to a depth of 12 inches were made in a visibly oil-contaminated drum storage area east of Location No. 6.

Location 8. Four 15-inch borings were made in a visibly oily area adjacent and east of a motor-block pile and crusher.

Location 9. Four 12-inch borings were made approximately 10 yards northeast of the compactor building. This was a low area, adjacent a ferrous scrap pile, that was visibly oil-contaminated. Standing water was in the immediate vicinity.

Each of these samples was analyzed for PCBs, trichloroethylene, pH, and EP Toxic lead, barium, and cadmium. Results of analysis are shown in Table A.

It is evident from these results that the area around locations No. 2 and No. 3 (which was identified as the area where PCBs were discovered earlier by the N.Y.D.E.C.) contains significant amounts of PCB (Aroclor Type 1254). Location No. 1, which is in the vicinity of Locations No. 2 and No. 3, contained a significantly lower concentration of PCB (also Aroclor Type 1254). Location No. 9 also showed a measurable amount (10 ppm) of the same type Aroclor.

Locations No. 6, No. 7, and No. 8, which were also in visibly oil-contaminated areas, were found to contain significant amounts of trichloroethylene. Locations No. 6 and No. 7 were within the general area that had reportedly (per discussions with N.Y.D.E.C. and Utica Alloys personnel) received spills of degreaser (trichloroethylene) sludge in the past. Location No. 8 was within an area that was heavily contaminated with oil, and PCB (Aroclor Type 1254) was also found at a level of 16 ppm. Location No. 6 was found to contain 1.1 ppm of the same type Aroclor. No PCB was detected at Location No. 7; however, due to analytical interferences caused by the high trichloroethylene concentration (6480 ppb), the detection level for PCB in this sample was elevated to 20 ppm.

A significant amount of trichloroethylene (66.9 ppb) was also found in the sample obtained from Location No. 5. This was an inactive, overgrown area alongside Leyland Avenue, approximately opposite (east of) the manholes discussed later in this report.

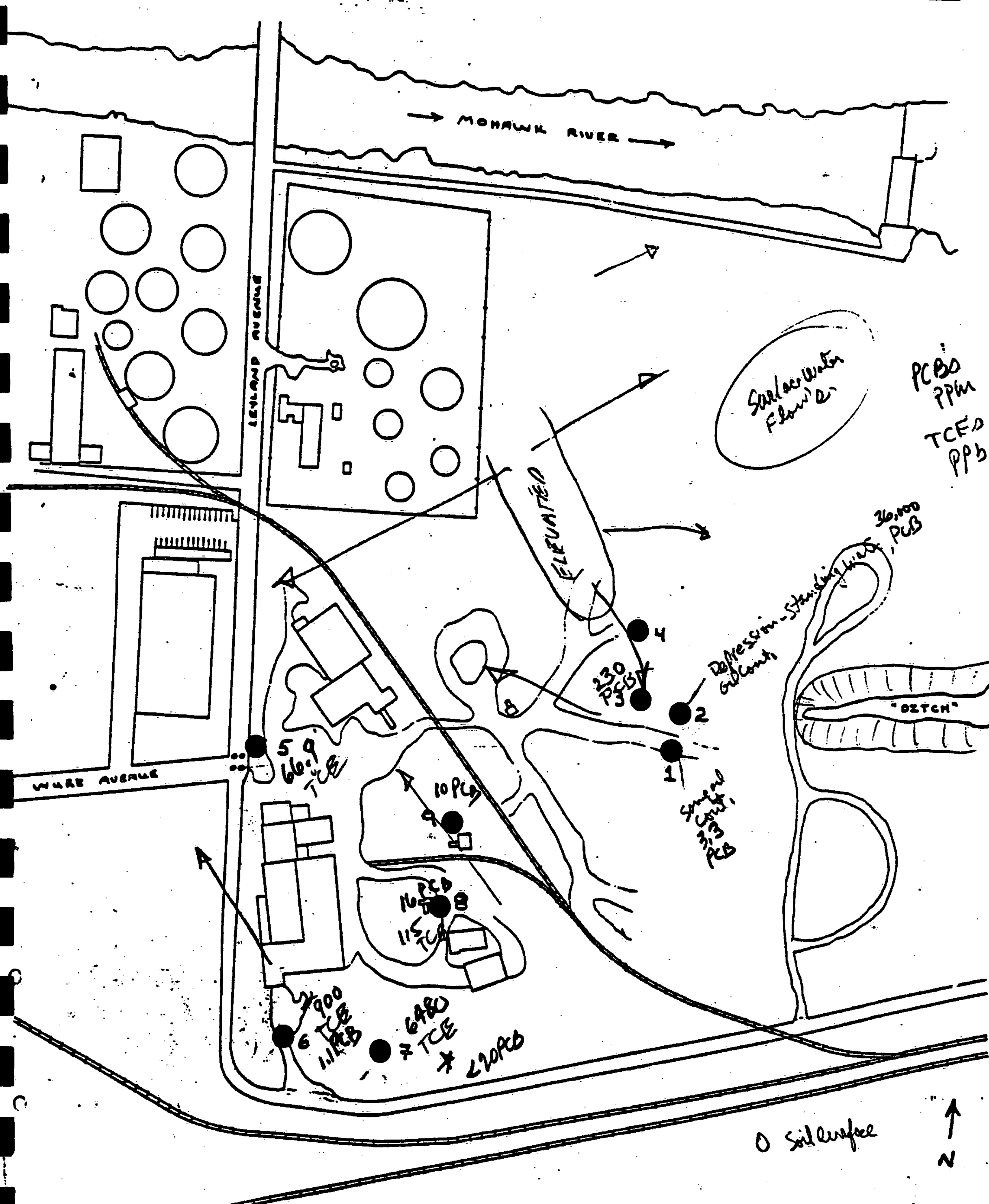


Figure 2. Utica Alloys: Surface Soil Sampling Locations

Table A

Surface Soil Analysis for the Utica Alloys Project

Location Number	PCB* (ppm)	Trichloroethylene (ppb)	pH	Lead** (mg/L)	Barium** (mg/L)	Cadmium** (mg/L)
1	3.3	ND	7.4	0.9	5.9	0.07
2	36,000	ND	7.6	1.9	19	0.06
3	230	ND	7.2	2.3	8	0.09
4	lt 1.0	ND	8.0	2.9	14	0.1
5	lt 1.0	66.9	8.4	0.043	32	0.03
6	1.1	900	8.2	0.012	32	0.0023
7	lt 20	6480	8.3	0.01	30	0.007
8	16	115	7.0	0.37	32	0.09
9	10	ND	7.0	0.07	35	0.011

lt = less than value shown; only Aroclor type 1254 was observed

*ND = not detected; detection limit = 6.0 micrograms/kg
** analysis per EP Toxicity procedure; average of duplicate analysis

4.3 SEWERS AND SURFACE WATERS INVESTIGATION

Based upon the information available prior to the field effort, the original work plan called for sampling of sewers at three locations. A storm sewer, which passes from Wurz Avenue, under the property, and discharges to the "respondent ditch" was to be sampled at the manhole at the Leyland and Wurz intersection, and at the outfall to the respondent ditch. A second sewer reportedly passed under the property and exited the property along the southern border.

Observations made during the field effort (and later confirmed by the City of Utica Engineering Office) indicated two sewer lines passing under the property, both of which flow west to east and discharge to the respondent ditch. No evidence of a discharge from the south end of the property was observed. The northernmost sewer line travels under Wurz Avenue approximately under the north curb. This is a 12-inch line which acts as an overflow for the sanitary system which turns south and joins the county sanitary sewer line which flows around the southwest corner of the property to the treatment plant. This overflow line travels through a manhole at the intersection of Leyland and Wurz, and continues under the Utica Alloys' property to the respondent ditch. The material in the manhole (which also had a line to the south opening into the adjacent manhole) was sampled (Sewer No. 1) and the outfall was sampled immediately below the discharge point (which was obstructed by broken brick and refuse) at a point before it combined with other waters in the ditch (Sewer No. 4). There was negligible sediment in this manhole, so no sample was obtained.

? Now plugged per city 2/85

The second sewer line also runs under Wurz Avenue. This line is a 21-inch storm sewer which opens into another manhole at the intersection of Leyland and Wurz Avenues. The exit line of this manhole is a 24-inch line which passes under the Utica Alloys's property to the respondent ditch. This line was sampled at the manhole (Sewer No. 2) and at the outfall (Sewer No. 3). Sediment samples were obtained from the manhole (Sewer Sed-2) and from the respondent ditch approximately 5 yards downstream from the point where the two discharge points mixed (Sewer Sed-4). Sewer sampling locations are shown on Figure 3.

Where would it cross over the sanitary sewer to arrive on the north side of the ditch?

A substantial organic, heavier-than-water layer was observed in the manhole at Sewer No. 1. Analytical results indicate that this material is trichloroethylene. Also, observations made during the field effort indicated that the respondent ditch had received a large quantity of oil some time in the past. In addition to the visibly oil-stained vegetation on both sides of the ditch, droplets of oil were observed being released from the moist sediment when it was disturbed.

Both the sewer and the sewer sediment samples were analyzed for PCBs and trichloroethylene, and gas chromatographic scans were also conducted. Results of these analyses are shown on Table B. Because of the very high concentration of trichloroethylene, and the resultant analytical interferences, limits of detection for other organic compounds are elevated and only those compounds detected are listed. Detailed results are presented in Appendix B.

Analyses for various toxic metals were also performed on these samples. These results are also shown on Table B.

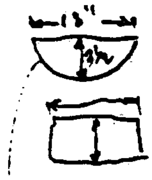
<u>In-situ</u> water parameters were also measured at the two manholes and in the respondent ditch using a Hydrolab 8000. These values are shown in Table C.

Flow measurements of the respondent ditch were obtained on August 20, 1983, at a point approximately 5 yards downstream of the point where the discharges of two outfalls met. At the point of

Clayton Environmental Consultants

Is it, or not ??

measurement, the channel was 18 inches wide and 3.5 inches deep. Based upon the flow velocity data which was obtained using a Pigmy flowmeter, and assuming a rectangular channel, the rate of flow in the respondent ditch was calculated at 15.75 cubic feet per minute, which equals 118 gallons per minute.



It is apparent from these results that trichloroethylene is present in significant concentrations "upstream" from the facility and at lower, but still significant levels downstream.

$\cos\alpha = 1 - \frac{H}{R}$

$= 1 - \frac{3.5}{9}$

$= 0.6111$

$\alpha = 52.33$

$\sin\alpha = 0.7915$

$A = 9^2\left(\frac{\alpha}{57.3} - \sin\alpha\cos\alpha\right)$

$= 81\left(\frac{52.33}{57.3} - 0.6111 \times 0.7915\right)$

$= 81(0.9133 - 0.4839)$

$= 81 \times .4294$

$= 34.78\ in^2$

If Rectangle $3\frac{1}{2} \times 18 = 63\ in^2$

$= 1.81$ of Partial

$\frac{118}{1.81} = 65\ gpm$

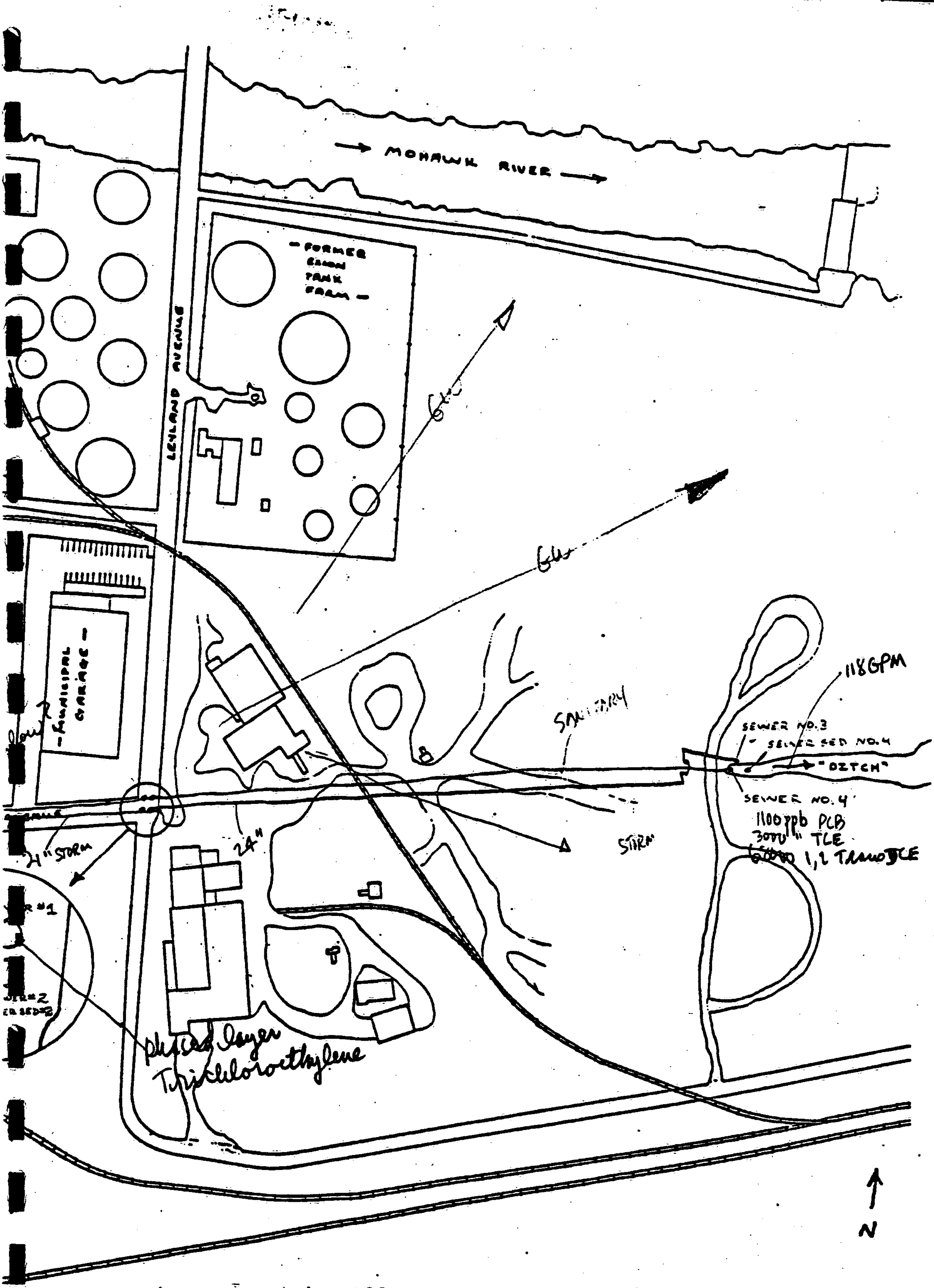


Figure 3. Utica Alloys: Sewer and Surface Waters Sampling

Table B

Sewer Water and Sediment Analyses
for
Utica Alloys Project
Contaminant Concentration (ppm)

Parameter	Sewer* No.1	Sewer No. 2	Sewer No. 3	Sewer* No. 4	Sewer Sed No. 2	Sewer Sed No. 4
PCB**(ppb)	lt 1.0	lt 0.1	lt 0.1	lt 1.0	730	1,100
Trichloroethylene	7,200	194	57	2,300	3	52,000
1,2-Trans dichloroethylene	ND	2.1	ND	ND	950	68
METALS:***						
Arsenic	0.009/0.0016	0.006	0.006	0.011		
Barium	3.5/1.1	2.0	2.4	2.6	30	29
Cadmium	0.017/0.017	0.0017	0.0005	0.0015	0.019	0.014
Chromium	0.0062/2.2	0.0043	lt 0.0020	0.023		
Lead	0.9/0.043	0.053	0.006	0.015	0.070	0.12
Mercury	lt 0.001	lt 0.001	lt 0.001	lt 0.001		
Selenium	0.01/lt 0.02	0.01	lt 0.01	0.01		
Silver	lt 0.05/lt 0.1	lt 0.05	lt 0.05	lt 0.05		

lt = less than value shown

*Sewer No. 1 sample contained two phases. Metals analysis was run separately on each fraction. Values shown are water phase/organic phase.

**Only Aroclor Type 1254 was detected.

***Values shown are averages from duplicate analyses.

Table C

In-Situ Parameters
of
Sewers and Ditch
Utica Alloys Project

Parameter	Sewer No. 1	Sewer No. 2	Ditch
Temp. (°C)	21.1	20.8	21.8
pH	6.65	6.57	6.57
Specific Conductance (umho/cm)	900	1000	1000
Dissolved Oxygen (ppm)	5.1	4.6	4.4
Oxidation-Reduction Potential	201	243	291

All measurements taken in the field with Hydrolab-8000 instrument.

4.4 SUBSURFACE SOIL AND GROUNDWATER INVESTIGATION

This investigation involved installation of seven monitoring wells around the site, within the site boundaries. The locations for these wells, shown on Figure 4, were chosen based upon suspected contaminant discharge localities, and estimated water table elevation changes.

These wells were drilled with a CME-55 drill rig using 6-1/4" hollow stem auger techniques. Continuous split spoon sampling was conducted at each drilling site. All augers and associated drilling equipment were cleaned with high pressure steam between borings to prevent possible cross-contamination of the wells. The seven wells were completed with 4-inch schedule 40 PVC pipe, with flush coupled threaded connections. The bottom 5 feet of each well consisted of a manufactured No. 20 slot PVC well screen with flush coupled threaded connections, and was sealed at the bottom with a PVC plug. No adhesives were used in constructing these wells. A clean silica 4Q sand pack was installed around each screen and extended above the screen. A bentonite seal was then placed above the sandpack to prevent downward movement of water into the sandpack. The annular space was then filled to grade with cement grout, and a 6-inch steel protective casing was installed. Based upon observations made during the drilling effort and agreements made between Clayton and onsite N.Y.D.E.C. personnel, all wells were drilled to a depth of 24 feet except Well B-7 which was drilled to a depth of 28 feet where a thin clay layer was penetrated and sand and gravel were encountered. However, the literature (N.Y. Cooperative Extension, 1970) indicates that shallow shale bedrock exists under the site. Specific well construction details are included in Appendix C to this report.

Water levels were taken a day following well construction with a Soil-Test electric water level indicator. These data were converted to feet above mean sea level (ft-msl) following survey of the monitoring wells by a registered surveyor. These data were used to develop the water elevation contour map discussed below. All cuttings and water pumped from the wells were stored in steel closed-head drums.

Each well was developed by pumping approximately 110 gallons (roughly 10 casing volumes) of water with a submersible pump (which was also thoroughly steam-cleaned between each borehole), with the exception of Well B-2 which was pumped dry three times due to low yield. Each well was allowed to recover at least 36 hours before sampling was conducted; however, in-situ parameters were measured immediately after pumping.

Groundwater samples were obtained using a PVC bailer which was thoroughly washed (with laboratory-grade Alconox solution) and rinsed (with distilled water) between each well. Detailed sampling and sample preservation procedures are detailed in Appendix C to this report.

4.4.1 Subsurface/Hydrogeological Characterization

The aquifer, as interpreted from verbal consultation with New York Geological Survey (NYGS) and U.S. Geological Survey (USGS) representatives and onsite boring data, appears to be composite glacial outwash deposited during the Quarternary period. Glacial outwash is characterized by poorly sorted layers and lenses of sands and silts as well as other material, depending on the original parent materials encountered during glaciation. These parent materials include varying amounts of moderately weathered marine deposits and other parent material, which lie to the north of the plant site.

The permeabilities, porosities, and seepage velocities of such an area tend to change drastically over short lateral, and vertical distances. However, an average hydraulic gradient of 0.004 ft/ft was calculated over the plant site area using the measured elevation data.

The direction of ground water flow, as determined from the water elevation contour map (Appendix C), varied from approximately N52°E to N93°E. An average permeability of 19.48 gpd/ft^2 was calculated using measurements taken from the constant head tests which were conducted at Wells B-1, B-5, and B-7. The applicable formula as described by U.S. Department of Interior (1977) follows:

$K = Q/(2\pi hl \times \ln l/r)$

Where,

K = permeability

Q = discharge into well

h = differential water height above static water level

l = length of screen (5 ft)

r = radius of the auger exterior

From this information an average seepage velocity of 0.03 ft/day was obtained using the formula (Johnson 1975):

$V = PI$

Where,

V = seepage velocity

P = permeability/porosity

I = hydralic gradient

Specific values for permeability were used in determining seepage velocities in each of the three wells tested (Wells B-1, B-5, and B-7). The variation in the calculated values given (Appendix C) is attributed to the erratic placement of glacial outwash materials.

Wells B-1, B-2, and B-6 were selected on the basis of needed proximity to the sewer lines for investigating possible lateral movement from this potentially concentrated source of contamination. Five-foot screens were used at all well locations. Upwardly extended sandpacks were used at well locations B-5, 6, and 7 so as to contact the upper saturated or perched zone of the water table. This was believed necessary because some of the volatile organics (such as benzene, toluene, and xylene) have a specific gravities less than water and tend to concentrate within the upper limits of the ground water table, whereas other organics (such as trichloroethylene) are heavier than water and tend to sink. A fenceline cross section of the site is included in Appendix C.

4.4.2 Subsurface Soil Analysis

Two core samples obtained from each of the boring locations were chosen for analysis. Samples were chosen so that the upper and the lower portions of the borehole would be represented. Results of analysis (identifying only those compounds detected) are shown in Table D. Complete results are detailed in Appendix C to this report.

These results indicate that trichloroethylene contamination exists in the subsurface soils at various depths at all locations except Location No. 4, where 1.8 ppm of PCB (Aroclor Type 1262) was found at the 10- to 12-foot level. A layer of oil contamination was observed at the 10- to 11-foot level of Location No. 4 which was adjacent and downgradient of the tank farm.

Location No. 1, which was west of an area used (only recently) as a parking area, and Location No. 2, which was at the extreme southwest corner of the property, both showed significantly higher levels of trichloroethylene at the 20- to 22-foot level compared to the 6- to 8-foot level. Because both of these locations are upgradient of the site, in inactive areas, and higher levels of trichloroethylene were found in the area below the clay layer observed, it is apparent that the source of this trichloroethylene may be (in part) from sources other than the Utica Alloys operations (e.g., contaminated sewers, tank farm, etc.).

4.4.3 Groundwater Analysis

In-situ groundwater parameters were measured "down hole" using a Hydrolab 8000 instrument. These measurements were taken after the wells had been developed (pumped), and the results are shown in Table E.

Samples were obtained from each well after they had been allowed to recover for over 36 hours. Thirty-six to 40 gallons of water were pumped from each well immediately before sampling. The pump used was, again, thoroughly steam-cleaned between wells. Well pumping and sampling was performed in the same order as indicated by well number. These samples were analyzed for toxic metals, iron, manganese, chloride, sulfate, phenols, PCB, and trichloroethylene, and a gas chromatographic scan was conducted. Detailed results are provided in Appendix C to this report, and concentrations of those compounds detected are shown in Table F. Because two types of PCB were detected in some wells, their concentrations are shown separately.

These results indicate the presence of PCB in the groundwater at all of the well locations. Although only Aroclor Type 1254 was found on the surface of the property, both Type 1254 and Type 1262 were detected in the groundwater. This fact and the fact that the upgradient wells contained PCBs also indicate that offsite sources may be contributing to this contamination.

Trichloroethylene was detected only at Well No. 2 at the detection level of 0.005 ppm as was 1,1,1-trichloroethane (at the same level) and tetrachloroethylene at 0.010 ppm.

Based upon the above and the observed levels of arsenic (Well No. 5), barium (all wells), Cadmium (Wells No. 1, 3, and 7), lead (Wells No. 2, 3, 5, 6, and 7), phenols (all wells), and iron (all wells), these waters do not comply with the groundwater quality limits for Class GA (potable) waters.

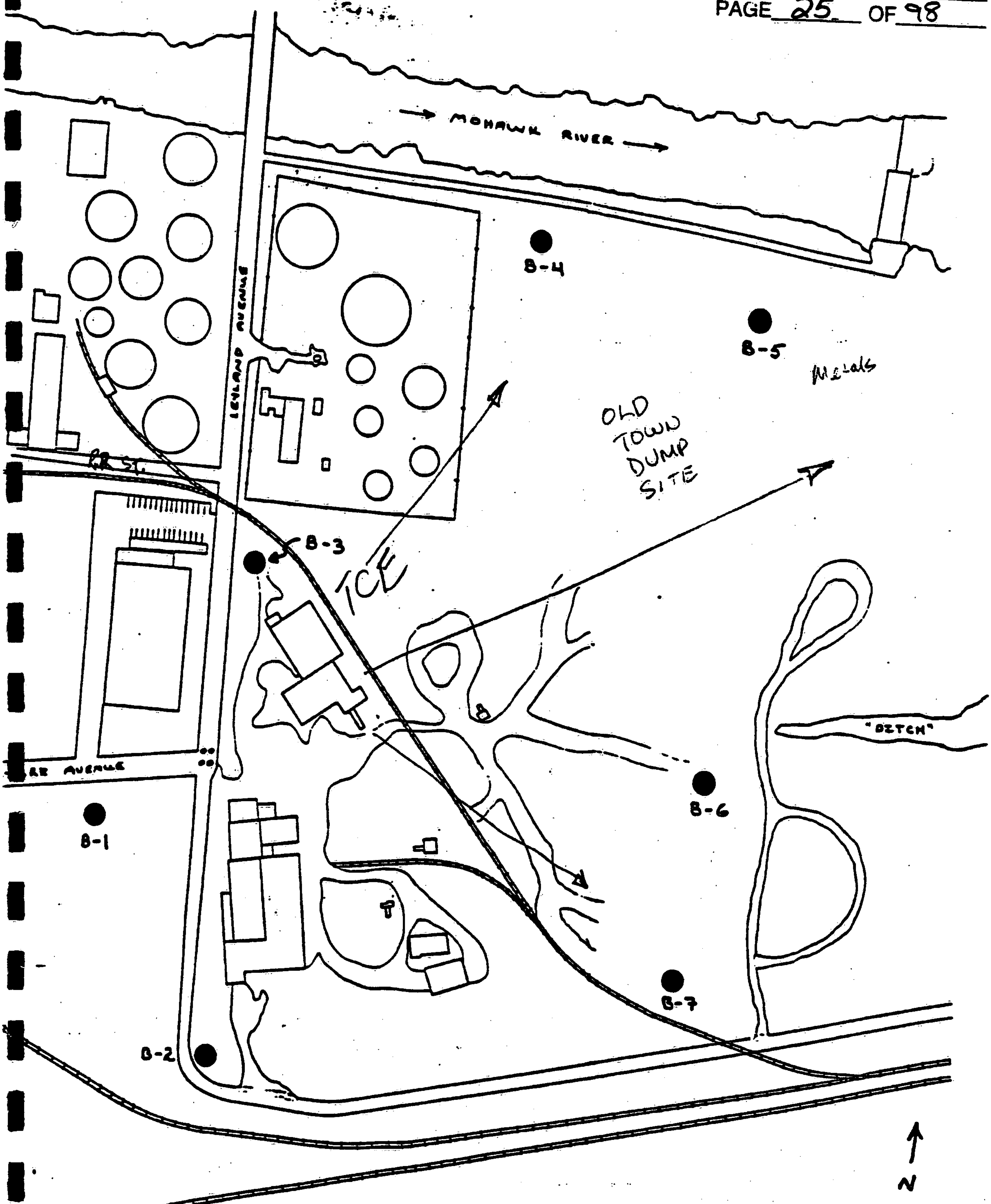


Figure 4. Utica Alloys: Well Locations (See also Appendix C)

Table D

Analysis of Subsurface Soils
for
Utica Alloys Project

Location	Depth (ft.)	PCB (ppm)	Trichloroethylene (ppb)	pH	Barium* (ppm)	Cadmium* (ppm)	Lead* (ppm)
1	6-8	lt 1	4.4	6.9	5.9	0.0025	0.010
1	20-22	lt 1	32.6	6.8	6.1	0.010	0.043
2	6-8	lt 1	lt 4.4	6.4	4.0	0.0019	0.016
2	20-22	lt 1	54.3	6.1	1.4	0.0017	0.008
3	4-6	lt 1	87.0	6.3	0.8	0.0020	0.015
3	16-18	lt 1	55.1	6.0	0.6	0.0031	0.006
4	10-12	1.8**	lt 4.4	7.2	5.9	0.0040	0.030
4	18-20	lt 1	lt 4.4	6.9	4.8	0.0029	0.007
5	10-12	lt 1	9.0	6.4	6.2	0.04	0.5
5	20-22	lt 1	5.7	5.3	0.7	0.0020	0.008
6	10-12	lt 1	lt 4.4	7.0	0.8	0.0012	0.016
6	18-20	lt 1	5.2	6.5	0.4	0.0012	0.007
7	12-14	lt 1	lt 4.4	6.5	1.2	0.0028	0.008
7	26-28	lt 1	5.9	6.1	1.4	0.0029	0.007

*Values reported are averaged (rounded up) of duplicate EP Toxicity analyses.
**Value reported is average (rounded up) of duplicate analyses. Aroclor Type 1262.

Table E
In-Situ Parameters
of
Wells Installed
Utica Alloys Project

Well No.	Temp. (°C)	Specific Conductance (umho/cm)	Dissolved Oxygen (mg/L)	pH (s.u.)	red/ox potential (mv)
1	19.2	1000	10.3	6.45	249
2	13.8	1200	1.27	6.25	262
3	19.8	400	10.2	6.00	279
4	14.3	1900	2.76	6.30	312
5	15.4	2000	4.3	5.99	247
6	14.3	2900	3.5	6.09	268
7	18.8	1600	5.2	6.37	290

Table F
Analysis of Groundwater
for
Utica Alloys Project
Concentration (ppm)

Analyte	Well Number 1	2	3	4	5	6	7	ppb ug/l Part 703 Class GA organic guideline
PCB (Aroclor 1254)	0.0020	0.0017	0.0008	0.0003	0.10	0.018	0.017	0.
PCB (Aroclor 1262)	0.0011	0.0011	0.0005	0.0002	ND	0.0046	ND	0.0001 ppm 0.1
Trichloroethylene	lt 0.005	0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	0.01 10.0
Phenols	0.018	0.010	0.012	0.011	0.009	0.008	0.004	0.001 1.0
Sulfate	0.04	0.03	0.03	0.09	0.02	0.65	0.03	
Chloride	34	50	28	60	140	84	110	
Iron	31	80	34	34	85	73	20	
Manganese	2.5	2.7	0.90	3.0	2.6	6.7	3.4	
Arsenic	0.006	0.015	0.006	0.006	0.028	0.006	0.007	.025 25.0
Barium	2.0	2.9	1.4	5.7	3.5	3.9	3.1	1.0 1000.0
Cadmium	0.02	0.0041	0.021	0.0011	0.0094	0.0099	0.015	.01 10.0
Chromium	0.0038	0.029	0.014	0.012	0.022	0.021	0.014	Guide 50.
Lead	0.020	0.10	0.17	0.015	0.23	0.075	0.08	.025 25.0
Mercury	lt 0.001	lt 0.001	lt 0.001	lt 0.001	0.0016	lt 0.001	lt 0.001	.002 2.0
Selenium	0.01	0.01	0.01	0.01	0.01	0.02	0.01	.01 10.0
Sodium	36	32	18	66	180	250	43	
Silver	lt 0.05	lt 0.05	lt 0.05	lt 0.05	lt 0.05	lt 0.05	lt 0.05	
Chloroform	0.014	lt 0.005	0.04	lt 0.005	lt 0.005	lt 0.005	lt 0.005	0.1 100.0
Tetrachloroethylene	lt 0.005	0.010	lt 0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	
1,1,1-Trichloroethane	lt 0.005	0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	lt 0.005	

4.5 AIR QUALITY IMPACT INVESTIGATION

To evaluate the potential impact on air quality caused by chemical compounds possibly disposed of on this site, an ambient air quality investigation was conducted. A weather vane was erected above the compactor building—near the approximate center of the property—to determine the upwind and downwind direction.

On each of the three sampling days, two sampling poles were erected, one near the property line in the downwind direction, and one near the property line in the upwind direction. Coincidentally, the same locations, shown on Figure 5, were used for all three days; however, on August 20 and 21, Station A represented the downwind direction and Station B the upwind direction, whereas on August 22, Station A represented the upwind direction and Station B the downwind direction. These locations were chosen to represent average ambient air quality, as specific areas of contamination had not specifically been identified.

Each sampling pole was equipped with two MSA sampling pumps approximately 10 feet above ground level. One pump was equipped with a charcoal tube, and one pump was equipped with a Florisil tube. The pumps used were all pre-calibrated (with the appropriate media type) to provide a sampling rate of at least 1 liter per minute. Calibration data are provided in Appendix D to this report. Sampling was conducted on each of the three days for 8 hours each day.

The charcoal tubes were desorbed with carbon disulfide, and analyzed for trichloroethylene. A GC/MS scan was also conducted on these samples. The Florisil tubes were desorbed with hexane and analyzed for PCB. Specific analytical procedures are also referenced in Appendix D.

No PCBs were detected in any of the Florisil sampling tubes at a detection level of 0.5 micrograms per Aroclor Type (except Type 1221 which has a detection level of 1.0 microgram) per tube. Based upon the sampling rates and times, the maximum calculated ambient air concentration of total PCB was less than 6.9 micrograms per cubic meter (ug/m^3). Based upon the limits of detection for those Aroclors observed during various other phases of the effort (Types 1254 and 1262), the maximum calculated ambient air concentration of these two Aroclors (total) is less than 1.38 ug/m^3.

Detectable levels of trichloroethylene were observed in several of the charcoal tube samples. A summary of the sampling conditions and trichloroethylene levels detected are presented below for each sampling day.

<u>August 20, 1983</u>

Weather: Sunny; rained evening before
Wind: Slight NNW in early morning changing to WNW by afternoon

Trichloroethylene Concentration:	Upwind	lt 0.0062 mg/m^3
	Downwind	0.075 mg/m^3

<u>August 21, 1983</u>

Weather: Sunny and dry
Wind: Slight WNW all day

Trichloroethylene Concentration:	Upwind	0.01 mg/m^3
	Downwind	0.04 mg/m^3

August 22, 1983

Weather: Cloudy and cool in morning; heavy rain in late morning-afternoon.
Wind: Breezy ESE

Trichloroethylene Concentration:	Upwind	lt 0.005 mg/m^3
	Downwind	0.006 mg/m^3

The results indicate an increased ambient air concentration of trichloroethylene in the downwind samples compared to the upwind samples. However, all samples showed ambient air levels well below (over a factor of 10) the N.Y.D.E.C. Acceptable Ambient Air Level (0.9 mg/m^3).

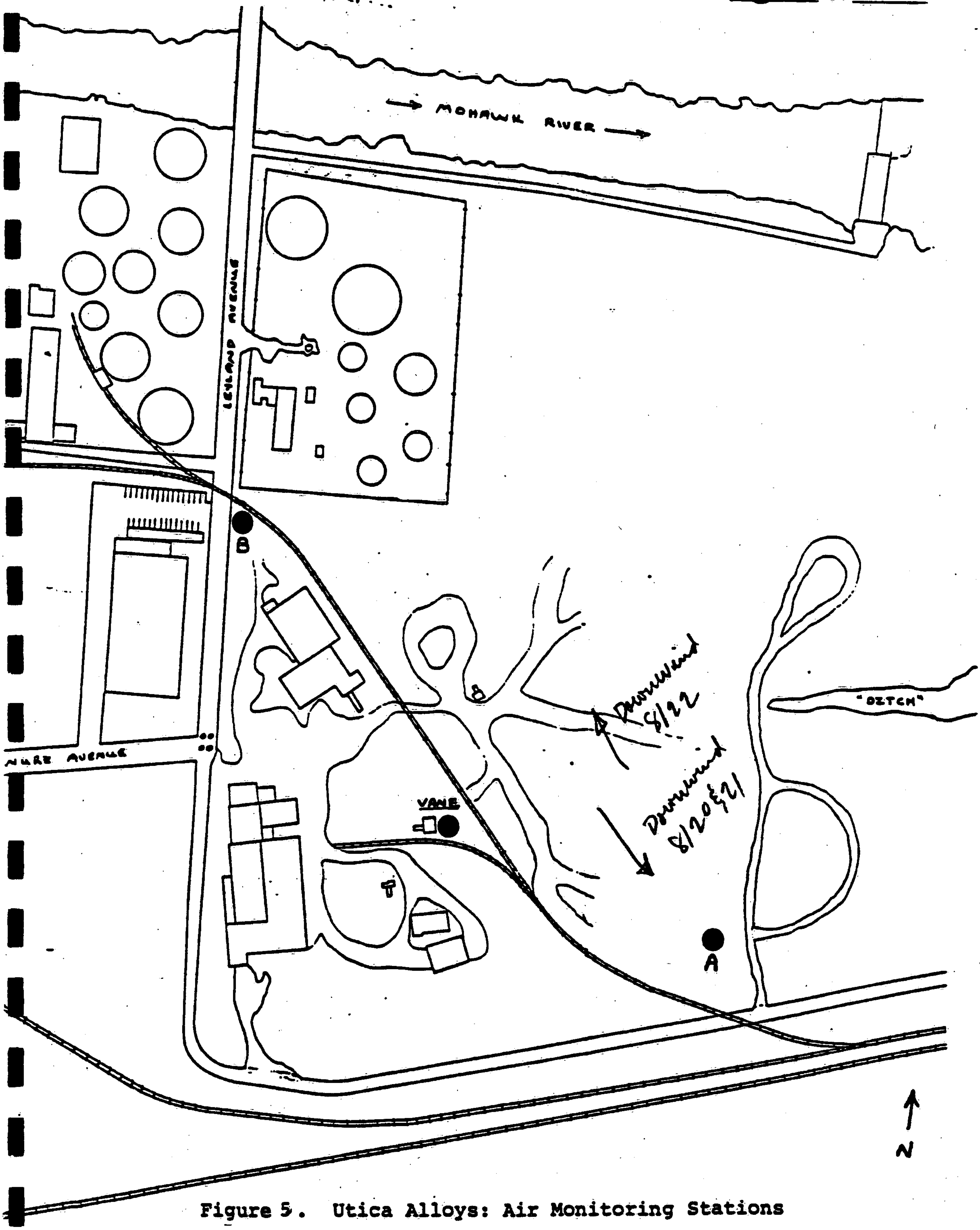


Figure 5. Utica Alloys: Air Monitoring Stations

5.0 DISCUSSION/FINDINGS

The important findings of this effort are presented below.

1. Visibly stained surface soil at surface soil sampling Locations No. 2 and No. 3 contained high levels of PCB (36,000 ppm and 230 ppm, respectively). Visibly stained surface soil in Locations No. 1, No. 6, No. 8, and No. 9 contained lower levels of PCB (3.3 ppm, 1.1 ppm, 16 ppm, and 10 ppm, respectively). In all of the above cases, only Aroclor Type 1254 was detected.

2. Visibly stained surface soil at surface soil sampling Locations No. 6, No. 7, and No. 8 were found to contain trichloroethylene (0.9 ppm, 6.48 ppm, and 0.115 ppm, respectively). Location No. 5, which was intended to be the "background" location, also contained 0.0669 ppm of trichloroethylene.

3. Trichloroethylene was visibly present in the sewers west (upgradient) of the property. High concentrations were observed at the discharge points east of the property. This indicates that the material is being carried under the property through the sewer lines. The source of this trichloroethylene (in the manholes) could not be identified.

4. Groundwater in the immediate area of the Utica Alloys property appears to flow in a direction approximately parallel to, and slightly toward, the river. This could be due to the effects of the flood control structure and the presence of the "respondent ditch." Based upon this direction of groundwater flow, Wells No. 1, 2, and 3 are upgradient of the facility's operations. Additional water level measurements should be performed to confirm this direction of flow.

5. Subsurface soils at all well locations, except Location No. 4, were found to contain trichloroethylene. Highest concentrations were observed at Locations No. 1, 2, and 3. With the exception of Locations No. 3 (which was in close proximity to observed surface contamination) and No. 5, higher levels were detected in the lower portion of the boreholes, which were below the confining layer of clay observed. This layer is composed of low permeability silts and clays. A cross-section diagram is provided in Appendix C to this report.

6. PCB (Aroclor Type 1262) was detected at a depth of 10 to 12 feet at Location No. 4, adjacent the abandoned tank farm. This was associated with oil observed at this same depth. Because no oil was detected in the upper soil at this location by visual observation, and because this area was not associated with any recent onsite activity, there is a strong possibility that this oil is originating from offsite.

7. PCB (at levels exceeding the GA-Class waters standards) was detected in all of the groundwater samples--both upgradient and downgradient. Both Aroclor Types 1254 and 1262 were observed in waters from Wells No. 1, 2, 3, 4, and 6.

8. There are no documented wells drawing from this aquifer in the area.

9. Increased levels of trichloroethylene were observed in downwind ambient air samples compared to upwind samples at the site. All levels observed were below the N.Y.D.E.C. Acceptable Ambient Level of 0.9 mg/m^3.

Based upon the above findings, and our professional judgment, the following conclusions can be drawn.

1. Contaminated surface soil in well-defined areas is present on the Utica Alloys property. Immediate action is called for in the PCB-contaminated area (surface soil sampling Locations No. 2 and No. 3) to prevent possible excessive exposure to onsite personnel.

2. Significant levels of trichloroethylene are traveling under the property from offsite via the two sewer lines, and entering the respondent ditch. The source of this contamination should be determined and controlled to prevent further releases to the Mohawk River.

3. There is no indication of hazardous wastes having been buried onsite.

4. The groundwater under the property is contaminated with PCBs and various toxic contaminants, and is therefore in violation of Class GA water quality criteria. The degree to which the Utica Alloys operations have contributed to this contamination can not be determined at this time because wells determined to be upgradient (based on water level measurements taken during periods of high and low water levels) of the operations were also contaminated with these same compounds. Data indicate a significant contribution from offsite sources, which should be investigated further.

5. There are no documented users of the groundwater discussed above. Therefore, there is no immediate health hazard posed by the groundwater contamination observed. However, groundwater discharge to the Mohawk River may reach human receptors.

6. The impact of the Utica Alloys operations on ambient air quality does not represent a significant health risk to the surrounding environment.

This report submitted by: Matthew D. Jerue
Matthew D. Jerue
Hazardous Waste Engineer

Robert A. Garrett FSL
Robert A. Garrett, C.F.S.

This report approved by: Jaswant Singh JFM
Jaswant Singh, Ph.D.
Vice President/Technical Director

March 21, 1984

SURFACE SOILS - SAMPLING

Surface soils at the Utica Alloys facility were sampled by hand augering techniques in accordance with EPA Document SW-846 Section 3.2.6.

1. Composite samples were obtained at each location of soils from the immediate surface to a depth of 18 inches.

2. The auger was thoroughly cleaned and dried prior to proceeding to the next sampling location.

3. Cleaning included removal of excess soil (wiping), thorough washing (Alconox solution), and thorough rinsing with distilled water.

4. The sampled material was placed in a glass jar with Teflon seal (prepared by the CEC lab), labeled, packaged, and transported in accordance with standard QC/QA and chain-of-custody procedures.

SURFACE SOILS - ANALYSIS

Surface soil samples were analyzed for the following:

Contaminant	Test Method
PCBs	Method 8.08[1]
Trichloroethylene	Method 8.01[1]
Lead	AA[2]
Barium	AA[2]
Cadmium	AA[2]
pH	Probe

1 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1980.

2 Atomic Absorption

Analytical Results for Utica Alloys Project

CEC Job No. 11949-13

Surface Soils

Sample (Location No.)	EP Tox (mg/L)* Pb	Cd	Ba	PCB** (ppm)	pH (s.u.)
S-1	0.3/1.5	0.06/0.08	5.4/6.4	3.3	7.4
S-2	3.2/0.5	0.07/0.04	22./15.	36,000	7.6
S-3	2.7/1.9	0.08/0.09	7.0/8.1	250/210(4)	7.2
S-4	3.4/2.3	0.09/0.10	14./13.	lt 1./lt 1.(4)	8.0
S-5	0.026/0.060	0.02/0.03	32./32.	lt 1	8.4
S-6	0.009/0.015	0.0019/0.0027	33./30.	1.1	8.2
S-7	0.010/0.009	0.011/0.003	30./30.	lt 20	8.3
S-8	0.14/0.6	0.08/0.10	31./32.	16	7.0
S-9	0.050/0.080	0.0070/0.015	34./35.	10	7.0

* Extracted in Duplicate, per EP Tox Procedure
** Only Aroclor Type 1254 Observed
(4) Sample Run in Duplicate
lt = Less Than

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22-SEP-83

5 ML EXTRACTED OF SAMPLE 9182 NO. 284414 S-1

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	0.0	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22-SEP-83

5 ML EXTRACTED OF SAMPLE 9183 NO. 284415 S-2

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS 0.0

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22 SEP-83

5 ML EXTRACTED OF SAMPLE 9184 NO.284416 S-3

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	0.0	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22-SEP-83

5 ML EXTRACTED OF SAMPLE 9185 NO. 284417 S-4

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	0.0	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22-SEP-83

5 ML EXTRACTED OF SAMPLE 9186 NO. 284418 S-5

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.		
TRICHLOROETHYLENE	66.9	6.0	5	52

ND = NOT DETECTED

TOTAL POLLUTANTS	66.9

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22-SEP-83

5 ML EXTRACTED OF SAMPLE 9187 NO.284419 S-6

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.		
TRICHLOROETHYLENE	900.0	6.0	5	54

ND = NOT DETECTED

TOTAL POLLUTANTS	900.0

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 23-SEP-83

5 ML EXTRACTED OF SAMPLE 9188 SAMPLE NO. 284420 S-7

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.		
TRICHLOROETHYLENE	6483.8	6.0	5	52

ND = NOT DETECTED

TOTAL POLLUTANTS	6483.8	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 23-SEP-83

6 ML EXTRACTED OF SAMPLE 9189 NO. 284421 S-8

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.		
TRICHLOROETHYLENE	114.9	6.0	5	56

ND = NOT DETECTED

TOTAL POLLUTANTS	114.9

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 23-SEP-83

4 ML EXTRACTED OF SAMPLE 9190 NO. 284422 S-9

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	0.0	

SURFACE WATER AND SEWER - SAMPLING

Surface-water and sewer samples were collected from the drainage ditch just off the Utica Alloys site, and two manholes on Leyland Avenue. Prior to actual collection of samples, in situ parameters were measured with the Hydrolab System 8000.

Because the water at each of the sampling locations was relatively shallow, grab samples were obtained using clean glass bottles. New bottles were used at each sampling location.

The samples were placed in appropriate sample containers (prepared by CEC lab), preserved as necessary, cooled to 4 °C, and shipped to Clayton's laboratory for analysis.

SEDIMENT SAMPLING

A Petite PONAR dredge was used to collect a sediment sample from the drainage ditch. This PONAR is capable of collecting a 36 square inch sample. It was lowered from the bank in the cocked position. It then tripped upon contact with the sediment. Consequently, a grab sample was obtained. The sample was then placed in a glass sample container, labeled according to date, time, and location, cooled to 4 °C, and transported to the laboratory for analysis.

SURFACE WATER AND SEWER - ANALYSIS

Unfiltered samples collected from the surface waters and sewers (including sediment samples) were analyzed as follows:

Contaminant	Test Method
PCBs	Method 8.08[1]
Trichloroethylene	Method 8.01[1]
Lead	AA[2]
Cadmium	AA[2]
Barium	AA[2]
Total Metals	AA[2]
pH	Onsite with Probe

A gas chromotography scan was also made on these samples.

1 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1980.

2 Atomic Absorption

Results of Analysis
for
Utica Alloys Project

CEC Job No. 11949-13

Sewer: Water and Sediment

Sample Description	Metals (mg/L) Pb	Ba	Cd	Ag	Cr	As	Se	Hg	PCB** (ppb)
Sewer 1 (aqueous)	0.9/0.9	3.1/3.9	0.017/0.016	lt 0.05	0.0062	0.009/0.008	lt 0.01/0.01	lt 0.01	lt 1.0
Sewer 1 (organic)	0.035/ 0.035/0.060	1.2/ 1.8/0.4	0.016/0.017	lt 0.1	2.2	0.0016/ 0.0014/0.0018	lt 0.02/ lt 0.02/lt 0.02	lt 0.001	lt 0.1
Sewer 2	0.045/0.060	2.0/1.9	0.0021/0.0013	lt 0.05	0.0043	0.005/0.006	0.01/lt 0.01	lt 0.001	lt 0.1
Sewer 3	0.006/0.005	2.4/2.3	0.0005/0.0005	lt 0.05	lt 0.002	0.005/0.006	lt 0.01/lt 0.01	lt 0.001	lt 0.1
Sewer 4	0.015/0.015	2.6/2.5	0.0018/0.0011	lt 0.05	0.023	0.011/0.010	lt 0.01/0.01	lt 0.001	lt 1.0
Sewer Sed-2*	0.070/0.070	29./31.	0.019/0.019	-	-	-	-	-	0.73 ppm
Sewer Sed-3*	0.10/0.13	29./29.	0.013/0.015	-	-	-	-	-	1.1 ppm

*By EP Toxic Procedure
**Only Aroclor Type 1254 Observed
lt = Less Than

REFERENCE # 5
PAGE 52 OF 98

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205
412-788-1080

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090209

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE - SEWER #1 284427

TSO ug/l, DT

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 10000000	ug/l
0V02	Acrylonitrile	< 10000000	ug/l
0V03	Benzene	< 1000000	ug/l
0V05	Bromoform	< 1000000	ug/l
0V06	Carbon Tetrachloride	< 1000000	ug/l
0V07	Chlorobenzene	< 1000000	ug/l
0V08	Chlorodibromomethane	< 1000000	ug/l
0V09	Chloroethane	< 1000000	ug/l
0V10	2-Chloroethylvinyl Ether	< 1000000	ug/l
0V11	Chloroform	< 1000000	ug/l
0V12	Dichlorobromomethane	< 1000000	ug/l
0V14	1,1-Dichloroethane	< 1000000	ug/l
0V15	1,2-Dichloroethane	< 1000000	ug/l
0V16	1,1-Dichloroethylene	< 1000000	ug/l
0V17	1,2-Dichloropropane	< 1000000	ug/l
0V18	1,3-Dichloropropylene	< 1000000	ug/l
0V19	Ethylbenzene	< 1000000	ug/l
0V20	Methyl Bromide	< 1000000	ug/l
0V21	Methyl Chloride	< 1000000	ug/l
0V22	Methylene Chloride	< 1000000	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 1000000	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 1000000	ug/l
0V25	Toluene	< 1000000	ug/l
0V26	1,2-Trans-Dichloroethylene	< 1000000	ug/l
0V27	1,1,1-Trichloroethane	< 1000000	ug/l
0V28	1,1,2-Trichloroethane	< 1000000	ug/l
0V29	Trichloroethylene	7200000	ug/l
0V31	Vinyl chloride	< 1000000	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205

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Park West Two
Cliff Mine Road
Pittsburgh, PA 15275
412-788-1080

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090210

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE SEWER #2 284428

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 500	ug/l
0V02	Acrylonitrile	< 500	ug/l
0V03	Benzene	< 25	ug/l
0V05	Bromoform	< 50	ug/l
0V06	Carbon Tetrachloride	< 25	ug/l
0V07	Chlorobenzene	< 25	ug/l
0V08	Chlorodibromomethane	< 25	ug/l
0V09	Chloroethane	< 50	ug/l
0V10	2-Chloroethylvinyl Ether	< 50	ug/l
0V11	Chloroform	< 25	ug/l
0V12	Dichlorobromomethane	< 25	ug/l
0V14	1,1-Dichloroethane	< 25	ug/l
0V15	1,2-Dichloroethane	< 5	ug/l
0V16	1,1-Dichloroethylene	< 25	ug/l
0V17	1,2-Dichloropropane	< 50	ug/l
0V18	1,3-Dichloropropylene	< 25	ug/l
0V19	Ethylbenzene	< 25	ug/l
0V20	Methyl Bromide	< 50	ug/l
0V21	Methyl Chloride	< 50	ug/l
0V22	Methylene Chloride	< 25	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 50	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 25	ug/l
0V25	Toluene	< 25	ug/l
0V26	1,2-Trans-Dichloroethylene	2100	ug/l
0V27	1,1,1-Trichloroethane	< 25	ug/l
0V28	1,1,2-Trichloroethane	< 25	ug/l
0V29	Trichloroethylene	194000	ug/l
0V31	Vinyl chloride	< 50	ug/l

COMMENTS:

Reviewed and Approved by: JMC

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5350 Campbells Run Road
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LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090211

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE SEWER #3 284429

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 500000	ug/l
0V02	Acrylonitrile	< 500000	ug/l
0V03	Benzene	< 25000	ug/l
0V05	Bromoform	< 50000	ug/l
0V06	Carbon Tetrachloride	< 25000	ug/l
0V07	Chlorobenzene	< 25000	ug/l
0V08	Chlorodibromomethane	< 25000	ug/l
0V09	Chloroethane	< 50000	ug/l
0V10	2-Chloroethylvinyl Ether	< 50000	ug/l
0V11	Chloroform	< 25000	ug/l
0V12	Dichlorobromomethane	< 25000	ug/l
0V14	1,1-Dichloroethane	< 25000	ug/l
0V15	1,2-Dichloroethane	< 5000	ug/l
0V16	1,1-Dichloroethylene	< 25000	ug/l
0V17	1,2-Dichloropropane	< 50000	ug/l
0V18	1,3-Dichloropropylene	< 25000	ug/l
0V19	Ethylbenzene	< 25000	ug/l
0V20	Methyl Bromide	< 50000	ug/l
0V21	Methyl Chloride	< 50000	ug/l
0V22	Methylene Chloride	< 25000	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 50000	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 25000	ug/l
0V25	Toluene	< 25000	ug/l
0V26	1,2-Trans-Dichloroethylene	< 25000	ug/l
0V27	1,1,1-Trichloroethane	< 25000	ug/l
0V28	1,1,2-Trichloroethane	< 25000	ug/l
0V29	Trichloroethylene	57000	ug/l
0V31	Vinyl chloride	< 50000	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
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Pittsburgh, PA 15205
412-788-1080

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275

LAB. ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075
REPORT DATE: 09/26/83
ATTENTION: MR.ROBERT LIECKFIELD

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090212
DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE SEWER #4 284430

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 10000000	ug/l
0V02	Acrylonitrile	< 10000000	ug/l
0V03	Benzene	< 1000000	ug/l
0V05	Bromoform	< 1000000	ug/l
0V06	Carbon Tetrachloride	< 1000000	ug/l
0V07	Chlorobenzene	< 1000000	ug/l
0V08	Chlorodibromomethane	< 1000000	ug/l
0V09	Chloroethane	< 1000000	ug/l
0V10	2-Chloroethylvinyl Ether	< 1000000	ug/l
0V11	Chloroform	< 1000000	ug/l
0V12	Dichlorobromomethane	< 1000000	ug/l
0V14	1,1-Dichloroethane	< 1000000	ug/l
0V15	1,2-Dichloroethane	< 1000000	ug/l
0V16	1,1-Dichloroethylene	< 1000000	ug/l
0V17	1,2-Dichloropropane	< 1000000	ug/l
0V18	1,3-Dichloropropylene	< 1000000	ug/l
0V19	Ethylbenzene	< 1000000	ug/l
0V20	Methyl Bromide	< 1000000	ug/l
0V21	Methyl Chloride	< 1000000	ug/l
0V22	Methylene Chloride	< 1000000	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 1000000	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 1000000	ug/l
0V25	Toluene	< 1000000	ug/l
0V26	1,2-Trans-Dichloroethylene	< 1000000	ug/l
0V27	1,1,1-Trichloroethane	< 1000000	ug/l
0V28	1,1,2-Trichloroethane	< 1000000	ug/l
0V29	Trichloroethylene	2300000	ug/l
0V31	Vinyl chloride	< 1000000	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205
412-788-1080

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275

REFERENCE # 5

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 700107
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090330

REPORT DATE: 10/07/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/07/83

SAMPLE IDENTIFICATION: SOIL SAMPLE SEWER SED #2 #704444

TEST	DETERMINATION	RESULTS	UNITS
0V15	VOLATILES-PP IN SEDIMENT		
0V41	Acrolein	< 10	ug/g
0V42	Acrylonitrile	< 10	ug/g
0V43	Benzene	< 1	ug/g
0V45	Bromoform	< 1	ug/g
0V46	Carbon Tetrachloride	< 1	ug/g
0V47	Chlorobenzene	< 1	ug/g
0V48	Chlorodibromomethane	< 1	ug/g
0V49	Chloroethane	< 1	ug/g
0V50	2-Chloroethylvinyl Ether	< 1	ug/g
0V51	Chloroform	< 1	ug/g
0V53	Dichlorobromomethane	< 1	ug/g
0V54	1,1-Dichloroethane	< 1	ug/g
0V55	1,2-Dichloroethane	< 1	ug/g
0V56	1,1-Dichloroethylene	< 1	ug/g
0V57	1,2-Dichloropropane	< 1	ug/g
0V58	1,3-Dichloropropylene	< 1	ug/g
0V59	Ethylbenzene	< 1	ug/g
0V60	Methyl Bromide	< 1	ug/g
0V61	Methyl Chloride	< 1	ug/g
0V62	Methylene Chloride	< 1	ug/g
0V63	1,1,2,2-Tetrachloroethane	< 1	ug/g
0V64	Tetrachloroethylene(Perchloro)	< 1	ug/g
0V65	Toluene	< 1	ug/g
0V66	1,2-Trans-Dichloroethylene	48	ug/g
0V67	1,1,1-Trichloroethane	< 1	ug/g
0V68	1,1,2-Trichloroethane	< 1	ug/g
0V69	Trichloroethylene	3	ug/g
0V71	Vinyl Chloride	< 1	ug/g

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275
412-788-1080

REFERENCE # 5
PAGE 58 OF 98

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 700129
NUS CLIENT NO: 800101
NUS SAMPLE NO: 13090329

REPORT DATE: 10/07/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/07/83

SAMPLE IDENTIFICATION: SOIL SAMPLE SEWER SED #4 #284445

TEST	DETERMINATION	RESULTS	UNITS
0V15	VOLATILES-PP IN SEDIMENT		
0V41	Acrolein	<400	ug/g
0V42	Acrylonitrile	<400	ug/g
0V43	Benzene	<40	ug/g
0V45	Bromoform	<40	ug/g
0V46	Carbon Tetrachloride	<40	ug/g
0V47	Chlorobenzene	<40	ug/g
0V48	Chlorodibromomethane	<40	ug/g
0V49	Chloroethane	<40	ug/g
0V50	2-Chloroethylvinyl Ether	<40	ug/g
0V51	Chloroform	<40	ug/g
0V53	Dichlorobromomethane	<40	ug/g
0V54	1,1-Dichloroethane	<40	ug/g
0V55	1,2-Dichloroethane	<40	ug/g
0V56	1,1-Dichloroethylene	<40	ug/g
0V57	1,2-Dichloropropane	<40	ug/g
0V58	1,3-Dichloropropylene	<40	ug/g
0V59	Ethylbenzene	<40	ug/g
0V60	Methyl Bromide	<40	ug/g
0V61	Methyl Chloride	<40	ug/g
0V62	Methylene Chloride	<40	ug/g
0V63	1,1,2,2-Tetrachloroethane	<40	ug/g
0V64	Tetrachloroethylene(Perchloro)	<40	ug/g
0V65	Toluene	<40	ug/g
0V66	1,2-Trans-Dichloroethylene	950	ug/g
0V67	1,1,1-Trichloroethane	<40	ug/g
0V68	1,1,2-Trichloroethane	<40	ug/g
0V69	Trichloroethylene	52000	ug/g
0V71	Vinyl Chloride	<40	ug/g

COMMENTS:

Reviewed and Approved by: JMC

GENERAL INFORMATION & KEY TO SUBSURFACE LOGS

The Subsurface Logs attached to this report present the observations and mechanical data collected by the driller while at the site, supplemented by classification of the materials removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface conditions between adjacent borings or between the sampled intervals. The data presented on the Subsurface Logs together with the recovered samples will provide a basis for evaluating the character of the subsurface conditions relative to the proposed construction. The evaluation must consider all the recorded details and their significance relative to each other. Often analyses of standard boring data indicate the need for additional testing and sampling procedures to more accurately evaluate the subsurface conditions. Any evalutions of the contents of this report and the recovered samples must be performed by Professionals having experience in Soil Mechanics and Foundation Engineering. The information presented in the following defines some of the procedures and terms used on the Subsurface Logs to describe the conditions encountered.

① The figures in the Depth column defines the scale of the Subsurface Log.

② The Sample column shows, graphically, the exact depth range from which a sample was recovered. See Table I for a description of the symbols used to signify the various types of samples.

③ The Sample No. is used for identification on sample containers and/or Laboratory Test Reports.

④ Blows on Sampler – shows the results of the "Penetration Test", recording the number of blows required to drive a split spoon sampler into the soil beneath the casing. The number of blows required for each six inches penetration is recorded. The total number of blows required for the last 12 inches of penetration are summarized in the "N" column. The outside diameter of the sampler, the hammer weight and the length of drop are noted at the bottom of the Subsurface Log.

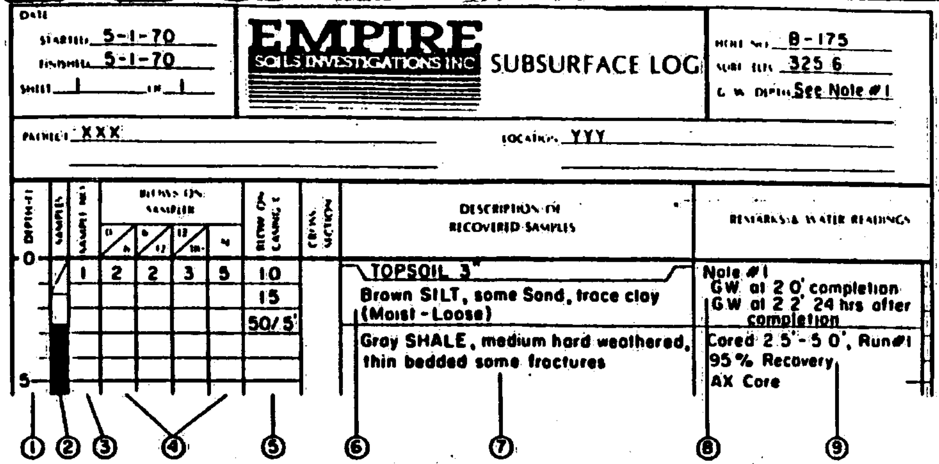
⑤ Blows on Casing – shows the number of blows required to advance the casing a distance of 12 inches. The casing size, the hammer weight and the length of drop are noted at the bottom of the Subsurface Log. If the casing is advanced by means other than driving, the method of advancement will be indicated in the Notes column or under Method of Investigation at the bottom of the Subsurface Log.

⑥ All recovered soil samples are reviewed in the laboratory by technicians. The visual descriptions are made on basis of the sample as recovered and in accordance with the Unified Classification System. Guide Lines for the terms used in descriptions are presented in Tables II and III. The description of the relative soil compactness or consistency is based upon the penetration records as defined in Table IV. The description of the soil moisture is based upon the condition of the sample as recovered. The moisture condition is described as dry, damp, moist or wet. Water used to advance the boring may have affected the in-situ moisture content of the sample. Special terms are used as required to describe materials in greater detail; several such terms are listed in Table V. When sampling gravelly soils with a standard two-inch diameter split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders and large gravel is sometimes, but not necessarily, detected by an evaluation of the casing and sampler blows or through the "action" of the drill rig as reported by the driller.

⑦ The description of rock shown is based upon the recovered rock core. Terms frequently used in the description are included in Table VI.

⑧ Miscellaneous observation and procedures noted by the driller are shown in this column, including water level observations. It is important to realize that the reliability of the water level observations depend upon the soil type (water does not readily stabilize in a hole through fine grained soils), and that drill water used to advance the borings may have influenced the observations. The ground water level typically will fluctuate seasonally. One or more perched or trapped water levels may exist in the ground seasonally. All the available readings should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or water observation installations.

⑨ The length of core run is defined as length of penetration between retrievals of the core barrel from the bore hole, expressed in feet and tenths of feet. The core recovery expresses the length of core recovered from the core barrel per core run, in percent. The size core barrel used is also noted. The more commonly used sizes of core barrels are denoted "AX" and "NX". The "NX" core, being larger in diameter than "AX" core, often produces better recovery, and is frequently utilized where accurate information regarding the geologic conditions and engineering properties is needed.


DATE STARTED 5-1-70 FINISHED 5-1-70 SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC SUBSURFACE LOG

HOLE NO. B-175 SURF. ELEV. 325 6 G. W. DEPTH See Note #1

PROJECT XXX LOCATION YYY

DEPTH-FT	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING	CROSS SECTION	DESCRIPTION OF RECOVERED SAMPLES	REMARKS & WATER READINGS
0		1	2	2	3	5	10		TOPSOIL 3"	Note #1
							15		Brown SILT, some Sand, trace clay (Moist - Loose)	GW at 2 0' completion GW at 2 2' 24 hrs after completion
							50/5'		Gray SHALE, medium hard weathered, thin bedded some fractures	Cored 2 5'-5 0', Run#1 95% Recovery AX Core
5										

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

TABLE I

Split Spoon Sample	
Shelby Tube Sample	
Auger or Pit Sample	
Rock Core	

TABLE II

Identification of soil type is made on basis of an estimate of particle sizes, and in the case of fine grained soils also on basis of plasticity.

Soil Type	Soil Particle Size	
Boulder	> 12"	Coarse Grained (Granular)
Cobble	3" – 12"	
Gravel - Coarse	3" – 3/4"	
- Fine	3/4" – #4	
Sand - Coarse	#4 – #10	
- Medium	#10 – #40	
- Fine	#40 – #200	
Silt - Non Plastic (Granular) / Clay - Plastic (Cohesive)	< #200	Fine Grained

TABLE III

The following terms are used in classifying soils consisting of mixtures of two or more soil types. The estimate is based on weight of total sample.

Term	Percent of Total Sample
"and"	35 – 50
"some"	20 – 35
"little"	10 – 20
"trace"	less than 10

(When sampling gravelly soils with a standard split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter.)

TABLE IV

The relative compactness or consistency is described in accord with the following terms.

Granular Soils Term	Blows per Foot, N	Cohesive Soils Term	Blows per Foot, N
Loose	< 10	Very Soft	< 2
Firm	11 – 30	Soft	3 – 5
Compact	31 – 50	Medium	6 – 15
Very Compact	> 51	Stiff	16 – 25
		Hard	> 26

(Large particles in the soils will often significantly influence the blows per foot recorded during the Penetration Test.)

TABLE V

Varved –	Alternating layers, seams, and partings of soils.
Layer –	Soil deposit more than 6" thick.
Seam –	Soil deposit less than 6" thick.
Parting –	Soil deposit less than 1/8" thick.
Uniform –	All grains are of about the same diameter.

TABLE VI

Rock Classification Terms

Term		Meaning	
Hardness	Soft	Scratched by fingernail	
	Medium Hard	Scratched easily by penknife	
	Hard	Scratched with difficulty by penknife	
	Very Hard	Cannot be scratched by penknife	
Weathering	Very Weathered	Judged from the relative amounts of disintegrating iron staining, core recovery, clay seams, etc	
	Weathered		
	Sound		
Bedding	Laminated	Natural breaks in Rock Layers	< 1"
	Thin bedded		1" – 4"
	Bedded		4" – 12"
	Thick bedded		12" – 36"
	Massive		> 36"

(Fracturing refers to natural breaks in the rock oriented at some angle to the rock layers.)

REFERENCE # 5
PAGE 59 OF 98

DATE STARTED 8-18-83
FINISHED 8-18-83
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC — SUBSURFACE LOG

HOLE NO B-1
SURF ELEV 98.42
G W DEPTH See Note

PROJECT Monitoring Well Installation
Utica Alloy
LOCATION Utica, New York

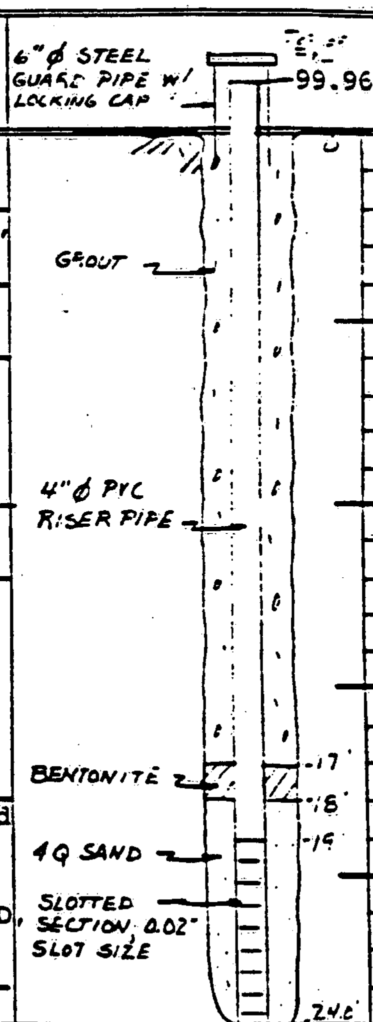
Depth	Sample	Blows on Sampler 0/6	6/12	12/18	18/24	Soil or Rock Classification
0	1	3	5	3	8	FILL:Black SILT, ASH & GRAVEL
		3				(Damp-Loose) 2.0'
	2	6	6	4	10	Brown coarse-fine SAND & fine GRAVEL,
		4				trace silt (Moist-Firm) 4.0'
5	3	1/12"		1	1	Grey fine SAND & SILT
		1				(Wet-Loose) 6.0'
	4	1/12"			1	Grey SILT w/Organic Mat'l
		1/12"				(Wet-Soft)
	5	1	2	4	6	Grey & Red Silty CLAY w/ Brick
		5				(Wet-Loose) 10.0'
10	6	1	1	1	2	Grey & Black Silty CLAY w/Organic
		1				Mat'l (Wet-Soft) 12.0'
	7	2	1	1	2	Grey SILT, trace clay & fine sand,
		1				w/Organic Mat'l
15	8	WOH	WOH	1/12"	1	(Wet-Soft)
	9	1/12"		1	1	
		1				18.0'
	10	1	1	1	2	Black & Grey SILT, medium-coarse Sand
		1				w/Organic Mat'l & Wood
20	11	1	1	2	3	(Wet-Soft) Grey fine-medium GRAVEL & coarse SAND,
		2				Silt (Saturated-Loose) 23.0'
	12A	2	3	2	5	
	12B	2				Grey SILT, little clay, trace fine sand (Wet-Soft)
25						

Boring Terminated @ 24.0'

(WOH-Weight of Hammer)

NOTE:
On 9-7-83, water level 6.9' below top of PVC Pipe (El.93.06).

(Water level 5' beyond culvert outlet at El. 85.48 on 9-7-83.)



4" DIA. PVC MONITORING WELL

N = No blows to drive 2" spoon 12" with 140 lb pin wt. falling 30" per blow CLASSIFICATION Visual by Driller
C = No blows to drive ___ casing ___" with ___ lb weight falling ___" per blow
METHOD OF INVESTIGATION -6¼" I.D. Hollow Stem Auger Casing & Standard Penetration Test

DATE STARTED 8-19-83
FINISHED 8-19-83
SHEET 1 OF 1

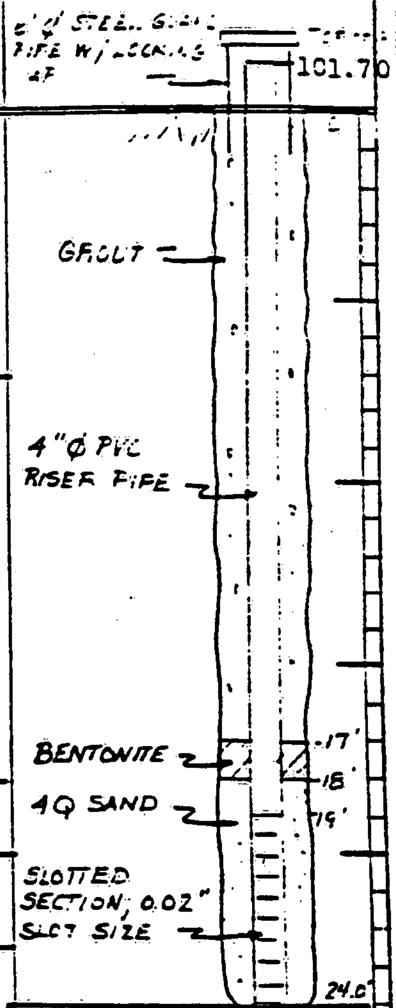
EMPIRE
SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO B-2
SURF ELEV 99.93
G W DEPTH See Note

PROJECT Monitoring Well Installations
LOCATION Utica Alloy
Utica, New York

Depth	Sample No.	Blows on Sampler 0/6	6/12	12/18	N	Blows on Casing	Soil or Rock Classification
0	1	4	8	8	16		FILL: Brown SAND & GRAVEL, Ash, Cinders (Damp-Firm)
		8					
	2	8	4	3	7		grades, Loose
		2					
	3	2	2	7	9		grades, Moist
5		4					
	4	3	6	2	8		7.0'
		2					Grey SILT, trace fine sand
	5	1/12"		1	1		(Moist-Very Soft)
		1					
10	6	1/12"		1	1		grades similar w/little clay & seams of fine Sand
		2					
	7	1/12"		1	1		
		1					
	8	1	1	1	2		
15		1					
	9	1	1	2	3		
		2					18.0'
	10	1	1	2	3		Grey SILT, little fine sand w/ organic mat'l (Wet-Soft) 20.0'
		1					
20	11	1/12"		3	3		Grey medium-fine SAND & Silt w/wood (Saturated-Loose)
		3					
	12	2	3	2	5		Grey medium-fine SAND & fine GRAVEL, trace silt (Wet)
		2					
25							



4"DIA. PVC MONITORING WELL

Boring Terminated @ 24.0'

NOTE:
On 8-19-83, water at 8.3'below Top of PVC. On 9-7-83, water at 8.7' below Top of PVC Pipe(El. 93.0)

N = No blows to drive 2 " spoon 12 " with 140 lb pin wt falling 30 "per blow CLASSIFICATION Visual by Driller

C = No blows to drive ___ " casing ___ " with ___ lb weight falling ___ "per blow

METHOD OF INVESTIGATION 6¼" I.D. Hollow Stem Auger Casing & Standard Penetration Test

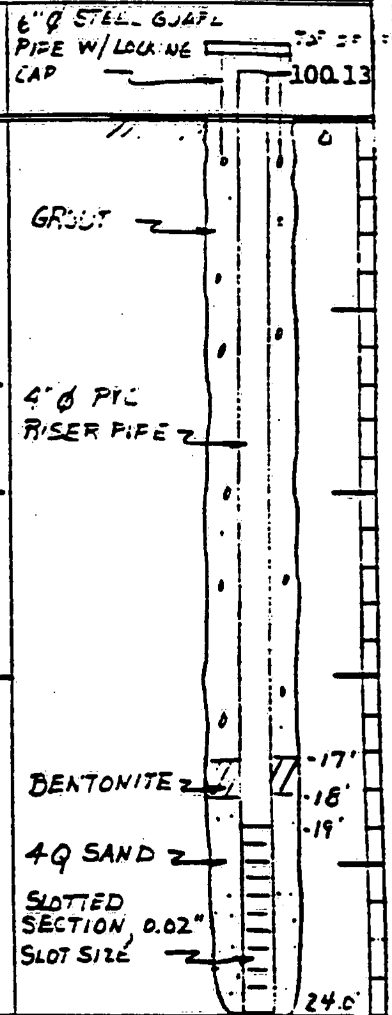
EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

DATE STARTED 8-18-83
FINISHED 8-19-83
SHEET 1 OF 1

HOLE NO B-3
SURF ELEV 98.28
G W DEPTH See Note

PROJECT Monitoring Well Installations
LOCATION Utica Alloy, Utica, New York

Depth	Sample No.	Blows on Sampler 0/6	6/12	12/18	N	Soil or Rock Classification
0	1	8	7	6	13	FILL: Black & Red CINDERS, BRICK (Damp-Firm)
		6				
	2	8	7	6	13	
		19				
	3	2	2	2	4	
5		2				
	4	2	2	4	6	7.0'
		3				FILL: greenish Brown SILT, trace clay brick, ash (Damp-Loose)
	5	2	2	3	5	
		3				10.0'
10	6	1/12"		1	1	Brown Silty CLAY (Wet-Very Soft)
		1				
	7	1	1	1	2	
		1				
	8	1	1	1	2	15.0'
15		1				Black & Grey medium-coarse GRAVEL & coarse SAND, little silt w/organic mat'l (Saturated-Loose)
	9	1	1	2	3	
		2				
	10	1	2	1	3	
		1				
20	11	1/12"			1	
		1/12"				
	12	1	2	1	3	grades w/more Silt
		1				
25						Boring Terminated @ 24.0'



4" DIA. PVC MONITORING WELL

NOTE:
On 8-19-83, water at 7.1' below Top of PVC Pipe. On 9-7-83, water at 7.3' below Top of PVC. (El. 92.85)

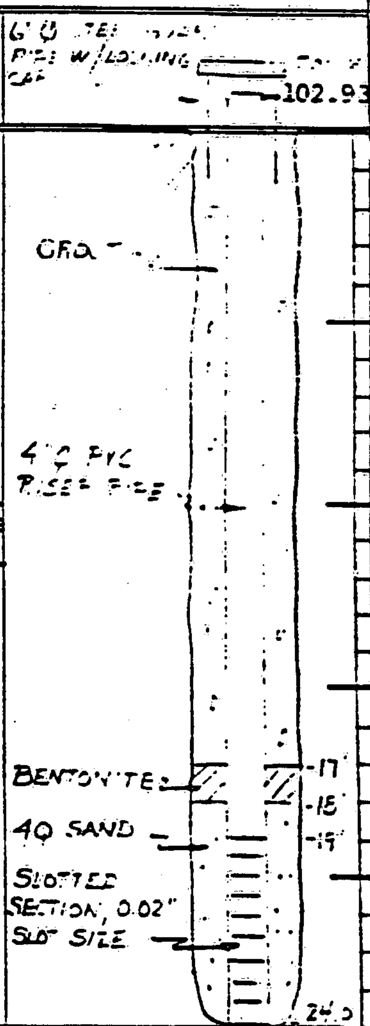
N = No blows to drive 2" spoon 12" with 140 lb pin wt falling 30" per blow
CLASSIFICATION Visual by Driller
C = No blows to drive ___" casing ___" with ___ lb weight falling ___" per blow
METHOD OF INVESTIGATION 6¼" I.D. Hollow Stem Auger Casing & Standard Penetration Test

DATE		EMPIRE SOILS INVESTIGATIONS INC.		
STARTED	8-20-83	SUBSURFACE LOG	HOLE NO	B-4
FINISHED	8-20-83		SURF ELEV	101.40
SHEET	1 OF 1		G W DEPTH	See Note

PROJECT: Monitoring Well Installations

LOCATION: Utica Alloy
Utica, New York

Depth	Sample No.	Blows on Sampler				Soil or Rock Classification
0	1	2	1	1	2	Misc.FILL: Red & Brown BRICK, ASH, CINDERS, silt
		1				(Damp-Loose)
	2	2	1	1	2	
		1				
5	3	2	2	4	6	
		5				
	4	5	7	5	12	similar w/more fine-medium Gravel
		4				
	5	3	4	4	8	
		5				10.0'
10	6A	4	3	1	4	Black & Brown medium-fine SAND, trace
	6B	2				silt (Saturated-Loose) 11.5'
	7	1	1	1	2	Brown SILT, little clay w/organic
		1				mat'l (Moist-Very Soft)
15	8	2	1	1	2	
		1				
	9	WOH	WOH	1	1	
		1				
	10A	1	1	3	4	19.0'
20	10B	3				Black & Grey coarse-fine SAND & fine
	11	2	3	3	6	GRAVEL, little silt
		2				(Saturated-Loose)
	12	2	3	2	5	No Recovery
		2				
25						Boring Terminated @ 24.0'



4" DIA. PVC MONITORING WELL

(WOH-Weight of Hammer)

NOTE:
On 9-7-83 water level at 10.95' below Top of PVC Pipe(El.91.98)

N = No blows to drive 2 " spoon 12 " with 140 lb pin wt falling 30 " per blow
CLASSIFICATION Visual by Driller

C = No blows to drive ____ " casing ____ " with ____ lb weight falling ____ " per blow

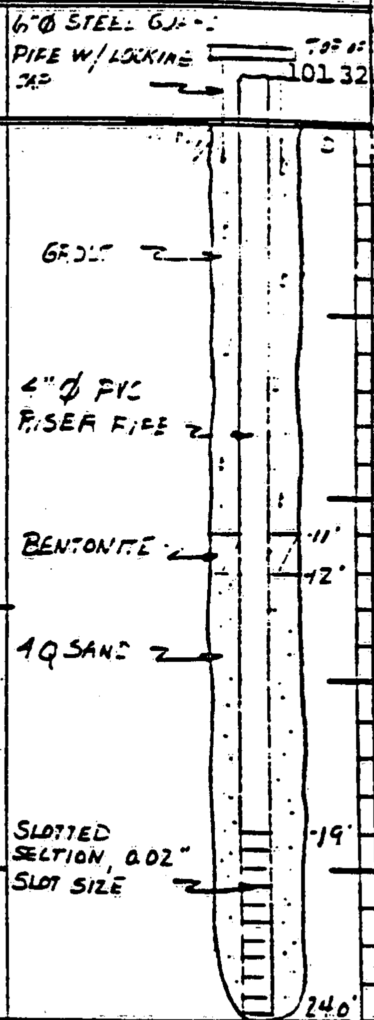
METHOD OF INVESTIGATION 6¼"I.D. Hollow Stem Auger Casing & Standard Penetration Test

DATE STARTED 8-16-83	**EMPIRE** SOILS INVESTIGATIONS INC SUBSURFACE LOG	HOLE NO B-5
FINISHED 8-17-83		SURF ELEV 99.58
SHEET 1 OF 1		G W DEPTH See Note

PROJECT Monitoring Well Installations LOCATION Utica Alloy Utica, New York

DEPTH	SAMPLE NO.	BLOWS ON SAMPLER				SOIL OR ROCK CLASSIFICATION
0	1	2	2	4	6	Misc.FILL: Brown ASH, Sand, Silt, cloth (Damp-Loose)
		1				
	2	2	4	6	10	
		13				
5	3	4	2	2	4	similar w/glass
		1				
	4	2	2	4	6	
		4				Saturated at 8'
	5	4	2	2	4	
		2				
10	6	4	2	2	4	
		1				
	7A	1	1	1	2	13.0'
	7B	1				Black & Grey SILT, trace clay w/ organic mat'l (Wet-Very Soft)
15	8	1	1	1	2	grades to Grey Silty CLAY (Wet-Soft)
		1				
	9	1	2	2	4	similar w/ seams of fine Sand
		1				
	10	1/12"			1	Grey medium-fine SAND & SILT (Saturated-Loose) 20.0'
20		1/12"				
	11	1/12"			1	Grey fine-medium SAND, trace silt w/ organic mat'l (Saturated-Loose)
		1/12"				
	12	1	2	2	4	
		2				
25						Boring Terminated @ 24.0'

NOTE:
On 8-19-83, water at 8.4' from ground surface. On 9-7-83, water at 10.75' below Top of PVC Pipe. (El. 90.57)



4" DIA. PVC MONITORING WELL

N = No blows to drive 2 " spoon 12 " with 140 lb pin wt falling 30 " per blow CLASSIFICATION Visual by Driller

C = No blows to drive ____ " casing ____ " with ____ lb weight falling ____ " per blow

METHOD OF INVESTIGATION 6¼" I.D. Hollow Stem Auger Casing & Standard Penetration Test

EMPIRE SOILS INVESTIGATIONS INC — SUBSURFACE LOG

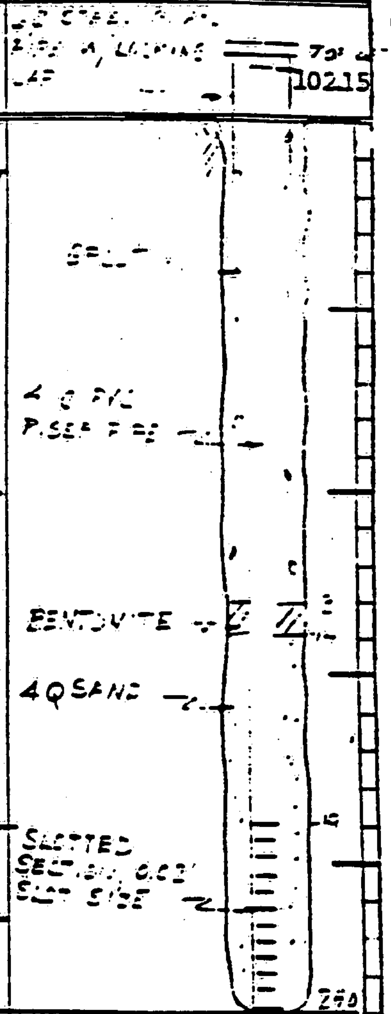
DATE STARTED 8-17-83 | FINISHED 8-17-83 | SHEET 1 OF 1

HOLE NO. E-6 | SURF. ELEV. 100.41 | G.W. DEPTH See Note

PROJECT: Monitoring Well Installation

LOCATION: Utica Alley, Utica, New York

Depth	Sample No.	Blows on Sampler 0/6	6/12	12/18	N	Soil or Rock Classification
0	1	7	14	20	34	FILL: Black weathered SHALE (Damp-Compact) 1.5'
		16				
	2	12	12	12	24	Misc. FILL: Red & Brown BRICK, ASH, Sand, Glass (Damp-Firm)
		13				
5	3	9	7	4	11	grades, Moist
		4				
	4	4	2	2	4	No Recovery - Rod Bounced (Leather or Rubber?)
		27				
	5	24	44	50	94	No Recovery - Rod Bounced 10.0'
10		65				
	6	2	1	1	2	Brown SILT w/parting of fine Sand (Wet-Very Soft)
		2				
	7	1/12"			1	similar w/more Sand
		1/12"				
15	8	WOR	WOR	WOH		Grey fine-medium SAND & SILT (Saturated-Loose)
		1				
	9	1	1	1	2	
		1				
	10	1	1	1	2	19.0'
20		2				
	11	2	4	4	8	Grey medium-fine SAND, little silt (Wet-Loose) 21.5'
		4				
	12	4	4	3	7	Grey medium-fine SAND & fine GRAVEL, traces silt (Wet-Loose)
		2				
25						



4" DIA. PVC MONITORING WELL

Boring Terminated @ 24.0'

(WOR-Weight of Rods)
(WOH-Weight of Hammer)

NOTE:
On 8-19-83, water at 8.5' below ground surface. On 9-7-83, water at 10.7' below Top of PVC Pipe. (El. 91.45)

N = No blows to drive 2" spoon 12" with 140 lb pin wt falling 30" per blow — CLASSIFICATION Visual by Driller

C = No blows to drive ___" casing ___" with ___ lb weight falling ___" per blow

METHOD OF INVESTIGATION: 6¼" I.D. Hollow Stem Auger Casing & Standard Penetration Test

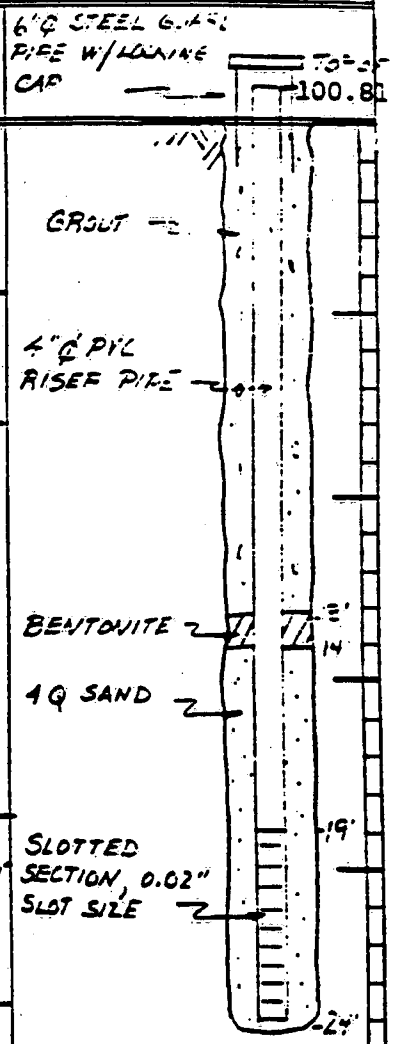
EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

DATE STARTED 8-15-83
FINISHED 8-15-83
SHEET 1 OF 1

HOLE NO B-7
SURF ELEV 99.21
G W DEPTH See Note

PROJECT Monitoring Well Installation
LOCATION Utica Alloy, Utica, New York

Depth	Sample No.	Blows on Sampler 0/6	6/12	12/18	N	Soil or Rock Classification
0	1	3	4	5	9	Misc. FILL: Red & Brown BRICK, SAND, SILT, Glass (Damp-Loose)
		7				
	2	4	5	6	11	
		4				4.5'
	3	3	2	1	3	Brown SILT, little organic mat'l (Moist-Soft)
5		1				
	4	1	1	2	3	
		1				8.0'
	5	1	1	2	3	Grey SILT, trace organic mat'l w/ seams of fine Sand (Moist-Soft)
		2				
10	6	1	1/12"		1	- Very Soft
		1				
	7	1/12"			1	
		1/12"				
15	8	1	1	1	2	similar w/more organic mat'l
		1				
	9	1	1	2	3	similar w/wood
		2				18.5'
	10	1	1	1	2	Grey medium-fine SAND w/Wood, trace fine gravel (Wet-Loose) 20.0'
		2				
20	11	1	1	2	3	Grey coarse-fine SAND & fine GRAVEL, (Saturated-Loose)
		2				
	12	1	2	2	4	23.5'
		3				
25	13	3	3	3	6	Grey fine-medium GRAVEL & SILT, trace clay & fine sand (Saturated-Loose)
		4				
	14	3	3	4	7	4" seam of CLAY & SILT
		5				



Boring Terminated @ 28.0'

4" DIA. PVC MONITORING WELL

NOTE:
1 hr. after completion of drilling, water level at 6.8' inside 25' of augers.
On 8-19-83, water at 6.9' below ground surface. On 9-7-83, water at 10.73' below Top of PVC Pipe. (El. 90.08)

N = No blows to drive 2" spoon 12" with 140 lb pin wt falling 30" per blow CLASSIFICATION Visual by Driller
C = No blows to drive ___" casing ___" with ___ lb weight falling ___" per blow
METHOD OF INVESTIGATION 3¼ & 6¼" I.D. Hollow Stem Auger Casing & Standard Penetration Test

CONSTANT HEAD TESTS
September 22, 1983

Well B-1

TIME (min.)	FLOW (gal.)
0-1	10
1-2	10
2-3	10
3-4	10
4-5	10
5-6	9
6-7	9
7-8	9
8-9	9
9-10	9
10-11	9
11-12	9
12-13	9
13-14	9
14-15	9
15-16	9
16-17	9
17-18	9
18-19	9
19-20	9
20-21	9
21-22	9
22-23	9
23-24	9
24-25	9

Well B-5

TIME (min.)	FLOW (gal.)
0-1	7.5
1-2	7.5
2-3	7.5
3-4	7.5
4-5	7.5
5-6	8
6-7	8
7-8	8
8-9	8
9-10	8.5
10-11	8.5
11-12	8.5
12-13	8,5
13-14	8.5
14-15	8.5
15-16	8.5
16-17	8.5
17-18	8.5
18-19	8.5
19-20	8.5
20-21	8.5
21-22	8.5
22-23	8.5
23-24	8.5

Well B-7

TIME (min.)	FLOW (gal.)
0-1	10
1-2	10
2-3	10
3-4	10
4-5	11
5-6	11
6-7	11
7-8	12
8-9	12
9-10	12
10-11	12
11-12	12
12-13	12
13-14	12
14-15	12
15-16	12
16-17	12
17-18	12
18-19	12
19-20	12
20-21	12

NOTES:

1.) Water levels for all test were kept at 1.5' above ground surface.

2.) Water source was from a drill rig using a Moyno Pump.

SEEPAGE CALCULATIONS: WELLS B1 and B5

B1: $K = \dfrac{9.2}{2\pi(5)(6.9)(2.477)} = 0.017 \dfrac{gpm}{ft^2}$

$= 0.017 \dfrac{gpm}{ft^2} \times 1440 \dfrac{min}{day}$

$= 24.48 \dfrac{gpd}{ft^2} \times \dfrac{1\ ft^3}{7.48\ g}$

$= 3.27\ ft/day^{-1}$

$$V = \frac{(3.27\ ft/day^{-1})(0.004\ ft/ft)}{0.35} = 0.04\ ft/day$$

B5: $K = \dfrac{8.2}{2\pi(5)(10.75)(2.477)} = 0.0098 \dfrac{gpm}{ft^2}$

$= 0.0098 \dfrac{gpm}{ft^2} \times \dfrac{1440\ min}{day}$

$= 14\ gpd/ft^2$

$= 14 \dfrac{gpd}{ft^2} \times \dfrac{1}{7.48} \dfrac{ft^3}{gal}$

$= 1.89\ ft/day^{-1}$

$$V = \frac{(1.89\ ft/day^{-1})(0.004\ ft/ft)}{0.40} = 0.02 \frac{ft}{day}$$

SEEPAGE CALCULATIONS: WELL B7

B7.: $K = \dfrac{11.5}{2\pi(5)(10.73)(2.477)} = 0.014 \dfrac{gpm}{ft^2}$

$= 0.014 \dfrac{gpm}{ft^2} \times 1440 \dfrac{min}{day}$

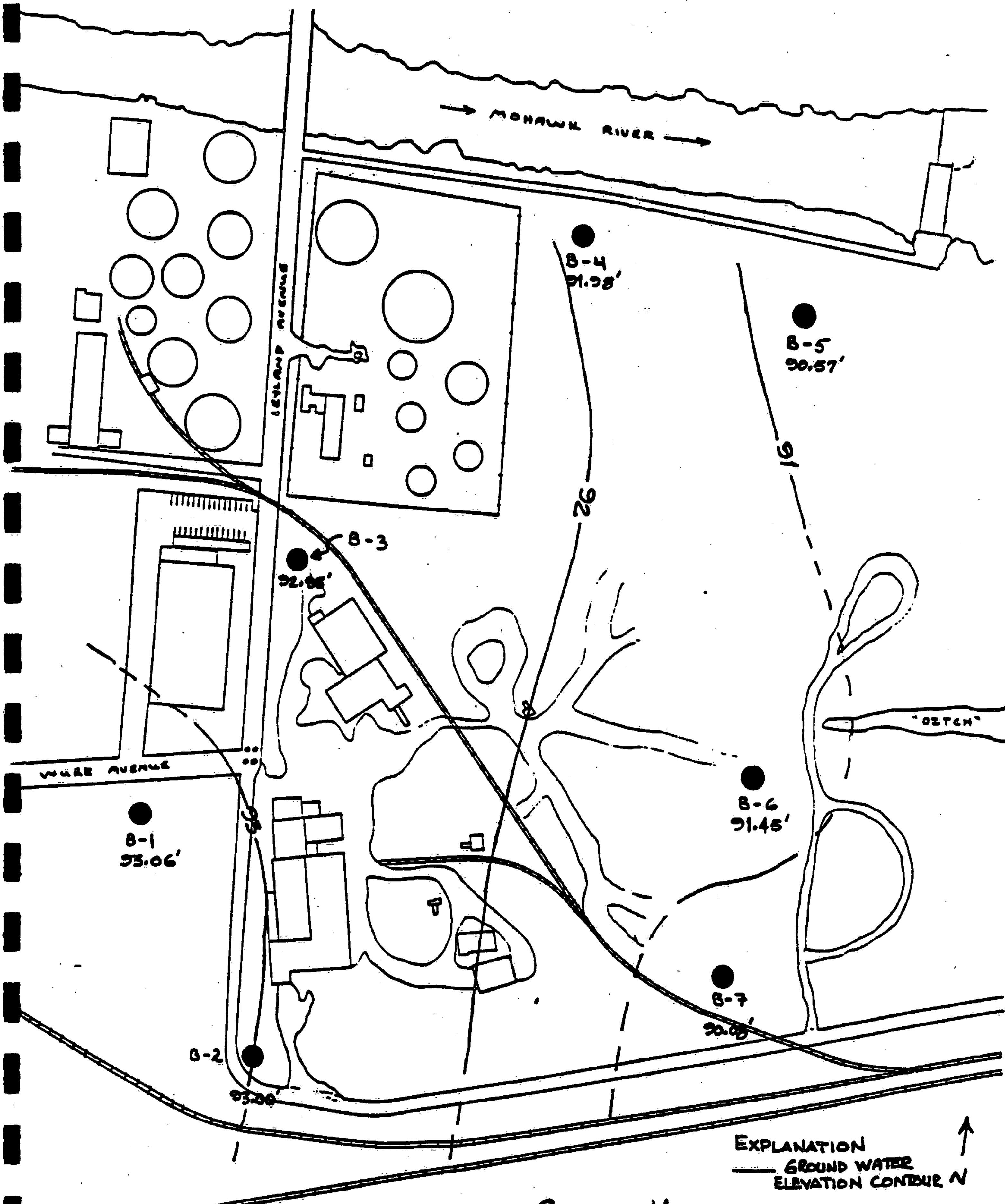
$= 19.83 \dfrac{gpd}{ft^2} \times \dfrac{1\ ft^3}{7.48\ g}$

$= 2.65\ ft/day^{-1}$

$$v = \frac{(2.65\ ft/day^{-1}) \times (0.004\ ft/ft)}{0.35}$$

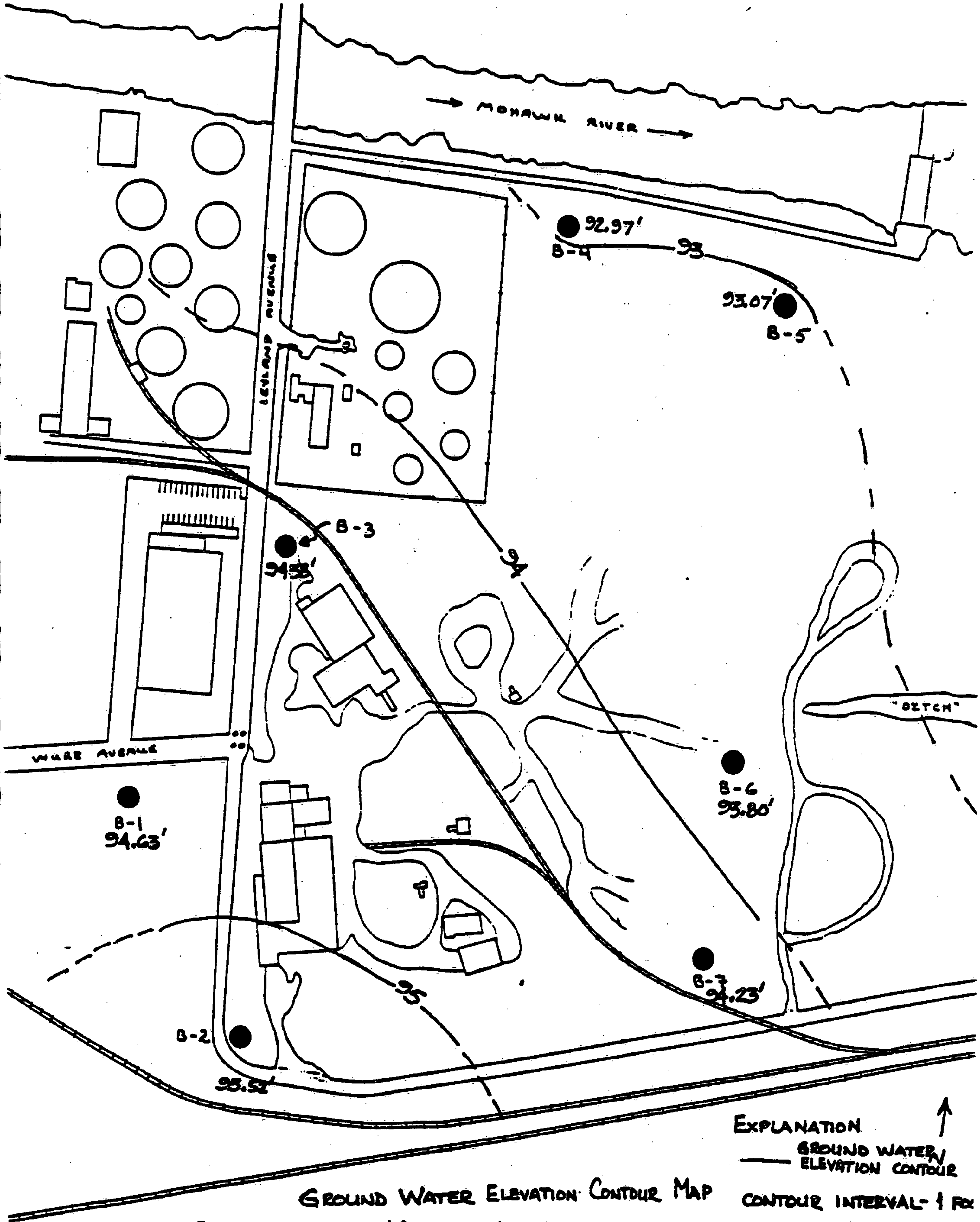
$= 0.03\ ft/day$

REFERENCE # 5
PAGE 70 OF 98

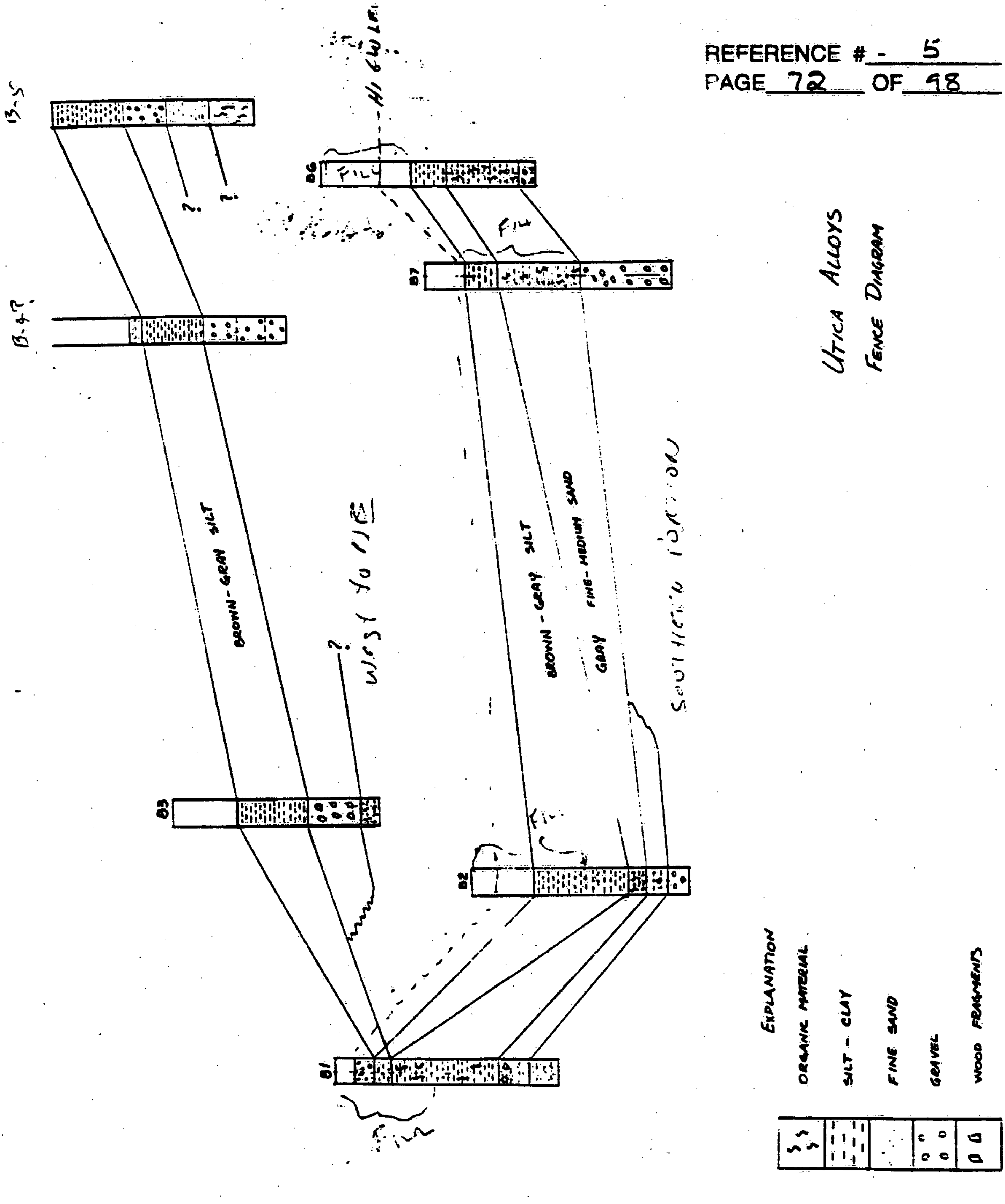


GROUND WATER ELEVATION CONTOUR MAP

CONTOUR INTERVAL-1 FOO



GROUND WATER ELEVATION CONTOUR MAP
MAY 16, 1984


UTICA ALLOYS
FENCE DIAGRAM
B-5
B-4?
B6
B7
B5
B2
B1
FILL
BROWN-GRAY SILT
BROWN-GRAY SILT
GRAY FINE-MEDIUM SAND
EXPLANATION
ORGANIC MATERIAL
SILT - CLAY
FINE SAND
GRAVEL
WOOD FRAGMENTS

Results of Analysis
for
Utica Alloys Project

CEC Job No. 11949-13

Subsurface Soils

Well Number	Depth (ft)	EP Tox (mg/L)* 5.0 Pb	1.0 Cd	100.0 Ba	PCB (ppm)	pH (s.u.)
B-1	6-8	0.008/0.012	0.0025/0.0024	5.8/5.9	lt 1.	6.9
B-1	20-22	0.046/0.040	0.011/0.0090	5.6/6.5	lt 1.	6.8
B-2	6-8	0.016/0.015	0.0021/0.0017	4.0/3.9	lt 1.	6.4
B-2	20-22	0.011/0.005	0.0017/ -	1.2/1.5	lt 1.	6.1
B-3	4-6	0.018/0.011	0.0010/0.0030	0.8/0.7	lt 1.	6.3
B-3	16-18	0.005/0.006	0.0031/0.0031	0.6/0.6	lt 1.	6.0
B-4	10-12	0.031/0.029	0.0038/0.0042	5.9/5.8	1.8**	7.2
B-4	18-20	0.006/0.007	0.0030/0.0028	4.8/4.7	lt 1.	6.9
B-5	10-12	0.5/0.5	0.04/0.03	6.1/6.2	lt 1.	6.4
B-5	20-22	0.011/0.005	0.0017/0.0023	0.7/0.7	lt 1.	5.3
B-6	10-12	0.006/0.025	0.0007/0.0017	0.8/0.8	lt 1.	7.0
B-6	18-20	lt 0.005/0.009	0.0009/0.0015	lt 0.3/0.4	lt 1.	6.5
B-7	12-14	0.005/0.012	0.0015/0.0041	1.2/1.2	lt 1.	6.5
B-7	26-28	lt 0.005/0.008	0.0027/0.0031	1.3/1.4	lt 1.	6.1

*Extracted in Duplicate
**Aroclor Type 1262

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22-SEP-83

4 ML EXTRACTED OF SAMPLE 9191 NO.285729 B-1 6-8

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	BELOW	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS 4.4

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22-SEP-83

4 ML EXTRACTED OF SAMPLE 2192 NO. 285730 B-1 20-22

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	32.6	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	32.6	

4 5

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON　　　　DATE : 23-SEP-83

6 ML EXTRACTED OF SAMPLE 9193 NO.285731　　B-2　6-8

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	0.0

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON ENVIRONMENTAL DATE : 27-SEP-83

4 ML EXTRACTED OF SAMPLE SAMPLE # 285732 B-2 20-22

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.		
TRICHLOROETHYLENE	54.3	6.0	4	38

ND = NOT DETECTED

TOTAL POLLUTANTS	54.3

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON ENVIRONMENTAL DATE : 27-SEP-83

6 ML EXTRACTED OF SAMPLE SAMPLE # 285733 B-3 4-6

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.		
TRICHLOROETHYLENE	87.0	6.0	5	39

ND = NOT DETECTED

TOTAL POLLUTANTS	87.0

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22-SEP-83

4 ML EXTRACTED OF SAMPLE 9126 NO. 285734 B-3 16-18

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	55.1	6.0

5 5:

ND = NOT DETECTED

TOTAL POLLUTANTS	55.1	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON ENVIRONMENTAL DATE : 27-SEP-83

5 ML EXTRACTED OF SAMPLE SAMPLE # 285735 B-4 10-12

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	0.0	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON ENVIRONMENTAL DATE : 27-SEP-83

5 ML EXTRACTED OF SAMPLE 9198 SAMPLE # 285736

B-4
18-20

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	0.0	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 22 SEP 83

5 ML EXTRACTED OF SAMPLE 9199 NO.285737 B-5 10-12

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.		
TRICHLOROETHYLENE	9.0	6.0	1	56

ND = NOT DETECTED

TOTAL POLLUTANTS	9.0

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON ENVIRONMENTAL DATE : 27-SEP-83

6 ML EXTRACTED OF SAMPLE 9200 SAMPLE # 285738 B-5 20-22

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	BELOW	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	5.7	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON ENVIRONMENTAL DATE : 27-SEP 83

5 ML EXTRACTED OF SAMPLE 9201 SAMPLE # 285739 B-6 10-12

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS 0.0

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON ENVIRONMENTAL DATE : 27-SEP 83

5 ML EXTRACTED OF SAMPLE 9202 SAMPLE # 285740 B-6 18-20

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	BELOW	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	5.2

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON ENVIRONMENTAL DATE : 27-SEP-83

6 ML EXTRACTED OF SAMPLE 9203 SAMPLE # 285741 B-7 12-14

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	ND	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	0.0	

SHRADER ANALYTICAL
&
CONSULTING LABORATORIES , INC.

QUANTITATION SUMMARY

CUSTOMER . . CLAYTON DATE : 27-SEP 83

5 ML EXTRACTED OF SAMPLE 9204 SAMPLE # 285742 B-7 26-28

CONC. UNITS : MICROGRAMS/LITER

COMPOUND	CONC.	D.L.
TRICHLOROETHYLENE	BELOW	6.0

ND = NOT DETECTED

TOTAL POLLUTANTS	5.9	

GROUNDWATER - ANALYSIS

Groundwater samples were analyzed as follows:

Parameter/Contaminant	Test Method
Dissolved oxygen	in situ (HydroLab System 8000)
Conductivity	in situ (Hydrolab System 8000)
ORP	in situ (Hydrolab System 8000)
pH	in situ (Hydrolab System 8000)
PCBs	Method 8.08[1]
Trichloroethylene	Method 8.01[1]
Lead	AA[2]
Cadmium	AA[2]
Barium	AA[2]
Total Metals	AA[2]
pH	AA[2]

A gas chromatography scan was also made on these samples.

1 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1980.

2 Atomic Absorption

Groundwater Analysis, Cont'd.

Analytical Methods

Analyte	EPA Method	Other
Chloride		407A[3]
Iron	Method 236.1[2]	
Manganese	Method 243.1[2]	
Phenols	Method 8.04, Gas Chromatography[1]	
Sodium	Method 273.1[2]	
Sulfate		426D[3]
PCB	Method 8.08[1]	
Trichloroethylene	Method 8.01[1]	
Extraction Procedure (EP Toxicity)	Section 7.0[1] Section 7.1-3-8[1] Subsection 7.5-2-6[1]	

1 Te~~x~~st Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1980.

2 Methods of Chemical Analysis of Water and Wastes, EPA 600, March 1979.

3 Standard Methods for the Examination of Water and Wastewater, 15th Edition, 1980.

Groundwater

Well Number	Metals (mg/L)								
	Pb	Cd	Ba	Mn	Ag	Cr	As	Se	Hg
B-1	0.014/0.025	0.02/0.02	2.0/2.0	2.4/2.6	lt 0.05	0.0038	lt 0.005/0.006	0.01/lt 0.01	lt 0.001
B-2	0.090/0.11	0.0039/0.0042	2.9/2.9	2.6/2.8	lt 0.05	0.029	0.017/0.012	lt 0.01/lt 0.01	lt 0.001
B-3	0.016/0.017	0.019/0.023	1.3/1.4	0.86/0.94	lt 0.05	0.014	0.005/0.006	0.01/0.01	lt 0.001
B-4	0.015/0.015	0.0010/0.0012	5.9/5.6	3.1/2.9	lt 0.05	0.012	0.006/lt 0.005	0.01/0.01	lt 0.001
B-5	0.25/0.20	0.011/0.0077	3.5/3.4	2.6/2.6	lt 0.05	0.022	0.031/0.024	0.01/0.01	0.0015/0.0016
B-6	0.050/0.080	0.0099/0.0099	3.8/4.0	6.7/6.6	lt 0.05	0.021	0.005/0.007	0.02/0.01	lt 0.001
B-7	0.045/0.11	0.0089/0.020	3.0/3.1	3.4/3.4	lt 0.05	0.014	0.006/0.008	0.01/0.01	lt 0.001

lt = Less Than

REFERENCE # 5
PAGE 90 OF 98

Results of Analysis
for
Utica Alloys Project

CEC Job No. 11949-13

Groundwater, Cont'd.

Well Number	Metals (mg/L) Fe	Metals (mg/L) Na	PCB (ppm) Type 1254	PCB (ppm) Type 1262	Phenol (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
B-1	28/34	37/35	0.0020	0.0011	0.018	34	0.04
B-2	81/79	30/33	0.0017	0.0011	0.010	50	0.03
B-3	32/36	21/14	0.0008	0.0005	0.012	28	0.03
B-4	34/33	66/65	0.0003	0.0002	0.011	60	0.09
B-5	83/86	190/170	0.10	-	0.009	140	0.02
B-6	76/69	260/240	0.018	0.0046	0.008	84	0.65
B-7	24/16	45/40	0.017	-	0.004	110	0.03

REFERENCE # 5
PAGE 91 OF 98

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205
412-788-1080

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090202

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE B-1 2B443E

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 100	ug/l
0V02	Acrylonitrile	< 100	ug/l
0V03	Benzene	< 5	ug/l
0V05	Bromoform	< 10	ug/l
0V06	Carbon Tetrachloride	< 5	ug/l
0V07	Chlorobenzene	< 5	ug/l
0V08	Chlorodibromomethane	< 5	ug/l
0V09	Chloroethane	< 10	ug/l
0V10	2-Chloroethylvinyl Ether	< 10	ug/l
0V11	Chloroform	14	ug/l
0V12	Dichlorobromomethane	< 5	ug/l
0V14	1,1-Dichloroethane	< 5	ug/l
0V15	1,2-Dichloroethane	< 5	ug/l
0V16	1,1-Dichloroethylene	< 5	ug/l
0V17	1,2-Dichloropropane	< 10	ug/l
0V18	1,3-Dichloropropylene	< 5	ug/l
0V19	Ethylbenzene	< 5	ug/l
0V20	Methyl Bromide	< 10	ug/l
0V21	Methyl Chloride	< 10	ug/l
0V22	Methylene Chloride	< 5	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 10	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 5	ug/l
0V25	Toluene	< 5	ug/l
0V26	1,2-Trans-Dichloroethylene	< 5	ug/l
0V27	1,1,1-Trichloroethane	< 5	ug/l
0V28	1,1,2-Trichloroethane	< 5	ug/l
0V29	Trichloroethylene	< 5	ug/l
0V31	Vinyl chloride	< 10	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205
412-788-1080

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075
ATTENTION: MR.ROBERT LIECKFIELD

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090203
REPORT DATE: 09/26/83
DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE B-2 284439

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 100	ug/l
0V02	Acrylonitrile	< 100	ug/l
0V03	Benzene	< 5	ug/l
0V05	Bromoform	< 10	ug/l
0V06	Carbon Tetrachloride	< 5	ug/l
0V07	Chlorobenzene	< 5	ug/l
0V08	Chlorodibromomethane	< 5	ug/l
0V09	Chloroethane	< 10	ug/l
0V10	2-Chloroethylvinyl Ether	< 10	ug/l
0V11	Chloroform	< 5	ug/l
0V12	Dichlorobromomethane	< 5	ug/l
0V14	1,1-Dichloroethane	< 5	ug/l
0V15	1,2-Dichloroethane	< 5	ug/l
0V16	1,1-Dichloroethylene	< 5	ug/l
0V17	1,2-Dichloropropane	< 10	ug/l
0V18	1,3-Dichloropropylene	< 5	ug/l
0V19	Ethylbenzene	< 5	ug/l
0V20	Methyl Bromide	< 10	ug/l
0V21	Methyl Chloride	< 10	ug/l
0V22	Methylene Chloride	< 5	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 10	ug/l
0V24	Tetrachloroethylene(Perchloro)	10	ug/l
0V25	Toluene	< 5	ug/l
0V26	1,2-Trans-Dichloroethylene	< 5	ug/l
0V27	1,1,1-Trichloroethane	5	ug/l
0V28	1,1,2-Trichloroethane	< 5	ug/l
0V29	Trichloroethylene	5	ug/l
0V31	Vinyl chloride	< 10	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205
412-788-1080

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090204

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE B-3 284440

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 100	ug/l
0V02	Acrylonitrile	< 100	ug/l
0V03	Benzene	< 5	ug/l
0V05	Bromoform	< 10	ug/l
0V06	Carbon Tetrachloride	< 5	ug/l
0V07	Chlorobenzene	< 5	ug/l
0V08	Chlorodibromomethane	< 5	ug/l
0V09	Chloroethane	< 10	ug/l
0V10	2-Chloroethylvinyl Ether	< 10	ug/l
0V11	Chloroform	40	ug/l
0V12	Dichlorobromomethane	< 5	ug/l
0V14	1,1-Dichloroethane	< 5	ug/l
0V15	1,2-Dichloroethane	< 1	ug/l
0V16	1,1-Dichloroethylene	< 5	ug/l
0V17	1,2-Dichloropropane	< 10	ug/l
0V18	1,3-Dichloropropylene	< 5	ug/l
0V19	Ethylbenzene	< 5	ug/l
0V20	Methyl Bromide	< 10	ug/l
0V21	Methyl Chloride	< 10	ug/l
0V22	Methylene Chloride	< 5	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 10	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 5	ug/l
0V25	Toluene	< 5	ug/l
0V26	1,2-Trans-Dichloroethylene	< 5	ug/l
0V27	1,1,1-Trichloroethane	< 5	ug/l
0V28	1,1,2-Trichloroethane	< 5	ug/l
0V29	Trichloroethylene	< 5	ug/l
0V31	Vinyl chloride	< 10	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205
412-788-1080

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090205

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE B-4 284441

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 100	ug/l
0V02	Acrylonitrile	< 100	ug/l
0V03	Benzene	< 5	ug/l
0V05	Bromoform	< 10	ug/l
0V06	Carbon Tetrachloride	< 5	ug/l
0V07	Chlorobenzene	< 5	ug/l
0V08	Chlorodibromomethane	< 5	ug/l
0V09	Chloroethane	< 10	ug/l
0V10	2-Chloroethylvinyl Ether	< 10	ug/l
0V11	Chloroform	< 5	ug/l
0V12	Dichlorobromomethane	< 5	ug/l
0V14	1,1-Dichloroethane	< 5	ug/l
0V15	1,2-Dichloroethane	< 1	ug/l
0V16	1,1-Dichloroethylene	< 5	ug/l
0V17	1,2-Dichloropropane	< 10	ug/l
0V18	1,3-Dichloropropylene	< 5	ug/l
0V19	Ethylbenzene	< 5	ug/l
0V20	Methyl Bromide	< 10	ug/l
0V21	Methyl Chloride	< 10	ug/l
0V22	Methylene Chloride	< 5	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 10	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 5	ug/l
0V25	Toluene	< 5	ug/l
0V26	1,2-Trans-Dichloroethylene	< 5	ug/l
0V27	1,1,1-Trichloroethane	< 5	ug/l
0V28	1,1,2-Trichloroethane	< 5	ug/l
0V29	Trichloroethylene	< 5	ug/l
0V31	Vinyl chloride	< 10	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275
412-788-1080

REFERENCE # 5
PAGE 96 OF 98

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090206

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE B-5 284442

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 100	ug/l
0V02	Acrylonitrile	< 100	ug/l
0V03	Benzene	< 5	ug/l
0V05	Bromoform	< 10	ug/l
0V06	Carbon Tetrachloride	< 5	ug/l
0V07	Chlorobenzene	< 5	ug/l
0V08	Chlorodibromomethane	< 5	ug/l
0V09	Chloroethane	< 10	ug/l
0V10	2-Chloroethylvinyl Ether	< 10	ug/l
0V11	Chloroform	< 5	ug/l
0V12	Dichlorobromomethane	< 5	ug/l
0V14	1,1-Dichloroethane	< 5	ug/l
0V15	1,2-Dichloroethane	< 1	ug/l
0V16	1,1-Dichloroethylene	< 5	ug/l
0V17	1,2-Dichloropropane	< 10	ug/l
0V18	1,3-Dichloropropylene	< 5	ug/l
0V19	Ethylbenzene	< 5	ug/l
0V20	Methyl Bromide	< 10	ug/l
0V21	Methyl Chloride	< 10	ug/l
0V22	Methylene Chloride	< 5	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 10	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 5	ug/l
0V25	Toluene	< 5	ug/l
0V26	1,2-Trans-Dichloroethylene	< 5	ug/l
0V27	1,1,1-Trichloroethane	< 5	ug/l
0V28	1,1,2-Trichloroethane	< 5	ug/l
0V29	Trichloroethylene	< 5	ug/l
0V31	Vinyl chloride	< 10	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205
412-788-1080

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275

REFERENCE # 5

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090207

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE B-6 284443

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 100	ug/l
0V02	Acrylonitrile	< 100	ug/l
0V03	Benzene	< 5	ug/l
0V05	Bromoform	< 10	ug/l
0V06	Carbon Tetrachloride	< 5	ug/l
0V07	Chlorobenzene	< 5	ug/l
0V08	Chlorodibromomethane	< 5	ug/l
0V09	Chloroethane	< 10	ug/l
0V10	2-Chloroethylvinyl Ether	< 10	ug/l
0V11	Chloroform	< 5	ug/l
0V12	Dichlorobromomethane	< 5	ug/l
0V14	1,1-Dichloroethane	< 5	ug/l
0V15	1,2-Dichloroethane	< 1	ug/l
0V16	1,1-Dichloroethylene	< 5	ug/l
0V17	1,2-Dichloropropane	< 10	ug/l
0V18	1,3-Dichloropropylene	< 5	ug/l
0V19	Ethylbenzene	< 5	ug/l
0V20	Methyl Bromide	< 10	ug/l
0V21	Methyl Chloride	< 10	ug/l
0V22	Methylene Chloride	< 5	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 10	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 5	ug/l
0V25	Toluene	< 5	ug/l
0V26	1,2-Trans-Dichloroethylene	< 5	ug/l
0V27	1,1,1-Trichloroethane	< 5	ug/l
0V28	1,1,2-Trichloroethane	< 5	ug/l
0V29	Trichloroethylene	< 5	ug/l
0V31	Vinyl chloride	< 10	ug/l

COMMENTS:

Reviewed and Approved by: JMC

NUS CORPORATION

Laboratory Services Division
5350 Campbells Run Road
Pittsburgh, PA 15205

REMIT TO:
Park West Two
Cliff Mine Road
Pittsburgh, PA 15275
412-788-1080

LAB ANALYSIS REPORT

CLIENT NAME: CLAYTON ENVIRONMENTAL
ADDRESS: 25711 SOUTHFIELD ROAD
SOUTHFIELD, MI 48075

NUS PROJECT NO: 7001CP
NUS CLIENT NO: 890101
NUS SAMPLE NO: 13090208

REPORT DATE: 09/26/83

ATTENTION: MR.ROBERT LIECKFIELD

DATE RECEIVED: 09/02/83

SAMPLE IDENTIFICATION: WATER SAMPLE B-7 284444

TEST	DETERMINATION	RESULTS	UNITS
0110	VOLATILES-PP IN WATER		
0V01	Acrolein	< 100	ug/l
0V02	Acrylonitrile	< 100	ug/l
0V03	Benzene	< 5	ug/l
0V05	Bromoform	< 10	ug/l
0V06	Carbon Tetrachloride	< 5	ug/l
0V07	Chlorobenzene	< 5	ug/l
0V08	Chlorodibromomethane	< 5	ug/l
0V09	Chloroethane	< 10	ug/l
0V10	2-Chloroethylvinyl Ether	< 10	ug/l
0V11	Chloroform	< 5	ug/l
0V12	Dichlorobromomethane	< 5	ug/l
0V14	1,1-Dichloroethane	< 5	ug/l
0V15	1,2-Dichloroethane	< 1	ug/l
0V16	1,1-Dichloroethylene	< 5	ug/l
0V17	1,2-Dichloropropane	< 10	ug/l
0V18	1,3-Dichloropropylene	< 5	ug/l
0V19	Ethylbenzene	< 5	ug/l
0V20	Methyl Bromide	< 10	ug/l
0V21	Methyl Chloride	< 10	ug/l
0V22	Methylene Chloride	< 5	ug/l
0V23	1,1,2,2-Tetrachloroethane	< 10	ug/l
0V24	Tetrachloroethylene(Perchloro)	< 5	ug/l
0V25	Toluene	< 5	ug/l
0V26	1,2-Trans-Dichloroethylene	< 5	ug/l
0V27	1,1,1-Trichloroethane	< 5	ug/l
0V28	1,1,2-Trichloroethane	< 5	ug/l
0V29	Trichloroethylene	< 5	ug/l
0V31	Vinyl chloride	< 10	ug/l

COMMENTS:

Reviewed and Approved by: JMC

REFERENCE 6

REFERENCE # 6
PAGE 1 OF 1

Wehran EMCON Northeast

TELEPHONE CONVERSATION MEMORANDUM

Client Ebasco

Project Universal Waste

Proj. No. 85595-001.000

Date 9-19-95

Time 11:15

Call To/From Louis Ferrara

Representing Oneida Co. Dept. of Health

Phone No. (315) 798-5064

Summary of Conversation Resources in Vicinity GW, SW, Air

No intakes of surface water in Oneida Co. For more info contact NYSDOH (315) 866-6879 Patrick Trapp

Surface water resources - some recreational use, but not extensive

Groundwater resources → call regional DEC

WHPA → call Jessica Breiton Oneida Co. Planning Dept (315) 798-5710

Private wells in sand & gravel? → call Region 6 DEC (315) 793-2555 Jim Luz or Joe Borgen. In general wells 30-50' deep are unconsolidated. Wells on hills are probably bedrock wells.

Other Sources of PCBs in area - Westinghouse, Empire Waste

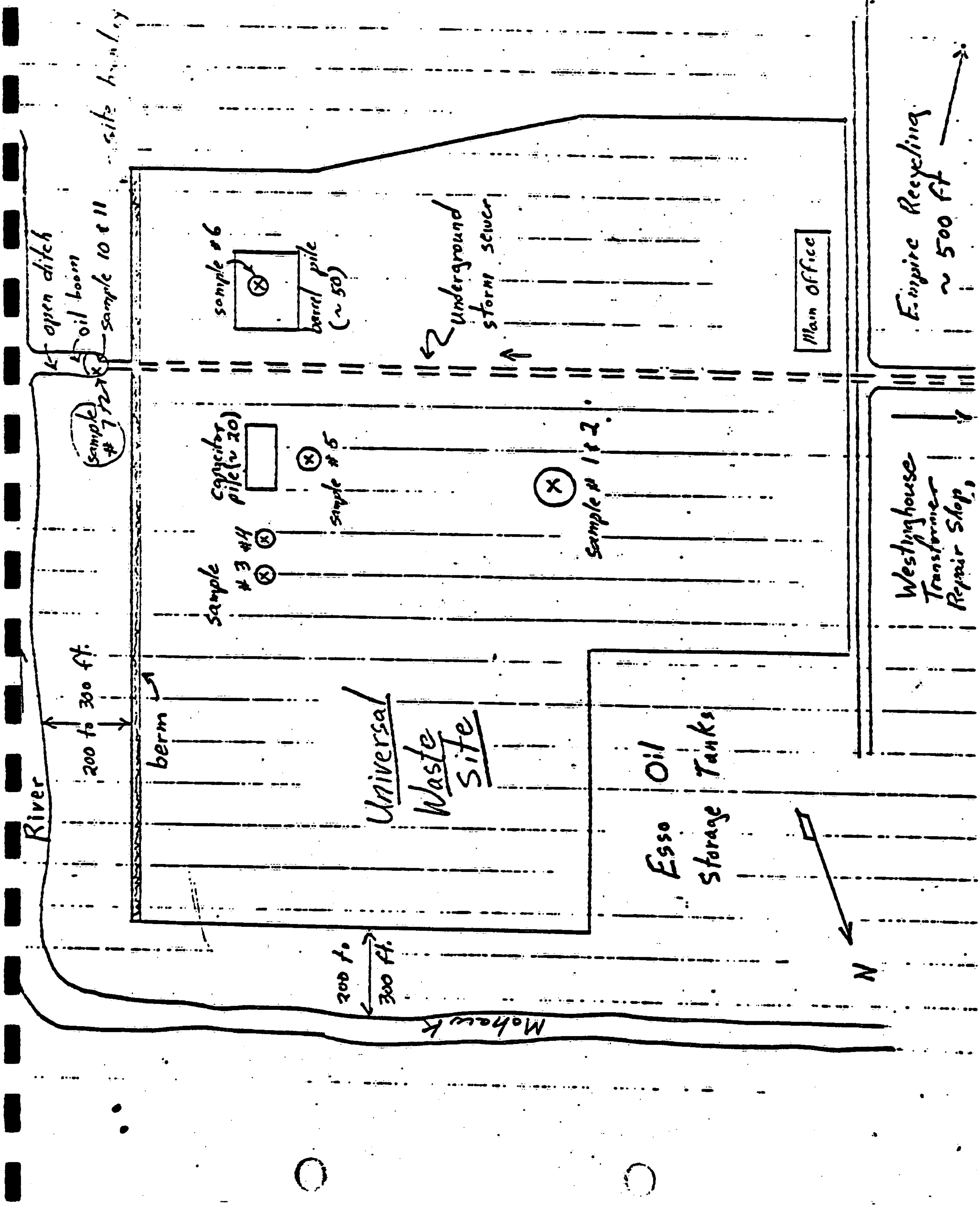
Universal Waste site was previously Old Utica Landfill

Copies To

By Julia A. Gilbert

10.008/8/94/4241080

REFERENCE 7


open ditch
oil boom
sample 10 & 11
sample #6
barrel pile (~50)
Underground storm sewer
Main office
Empire Recycling ~500 ft
capacitor pile (~20)
sample #5
sample #1 & 2
sample #3 #4
Westinghouse Transformer Repair Shop
200 to 300 ft.
berm
Universal Waste Site
Esso Oil Storage Tanks
River
Mohawk
N
200 to 300 ft.

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00633 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC DUPLICATE REPORT

EXACT SAMPLING POINT: ~~SAMPLE SITE #1~~ LUZ-1 7/14/77
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/14
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
038003	P.C.B., AROCLOR 1016/1242	MCG/G	1.	
038103	P.C.B., AROCLOR 1254	MCG/G	7.	
041603	P.C.B., AROCHLOR 1260	MCG/G	2.	
			10 μg/l	

DATE COMPLETED: 3/22/79 ✓

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
UTICA STATE OFFICE BUILDING
207 GENESEE STREET
UTICA, N.Y. 13500

SUBMITTED BY: LUZ

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00632 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC DUPLICATE REPORTT

EXACT SAMPLING POINT: SAMPLE SITE #2 LUZ-2
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/15 ✓
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

	PARAMETER	UNIT	RESULT	NOTATION
38003	P.C.B., AROCLOR 1016/1242	MCG/G	3.	
38103	P.C.B., AROCLOR 1254	MCG/G	50.	

DATE COMPLETED: 3/22/79

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
UTICA STATE OFFICE BUILDING
207 GENESEE STREET
UTICA, N.Y. 13500

SUBMITTED BY: LUZ

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00631 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC DUPLICATE REPORT

EXACT SAMPLING POINT: ~~SAMPLE SITE #5 LUZ-3~~
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/15
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

	PARAMETER	UNIT	RESULT	NOTATION
038003	P.C.B., AROCLOR 1016/1242	MCG/G	2.	
038103	P.C.B., AROCLOR 1254	MCG/G	4.	
041603	P.C.B., AROCHLOR 1260	MCG/G	2.	

8

DATE COMPLETED: 3/22/79

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
UTICA STATE OFFICE BUILDING
207 GENESEE STREET
UTICA, N.Y. 13500

SUBMITTED BY: LUZ

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00630 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC, UTICA(C)

EXACT SAMPLING POINT: SA[redacted]
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/15
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
039803	P.C.B., AROCLOR 1221	MCG/G	0.1	LT
038103	P.C.B., AROCLOR 1254	MCG/G	2.	
038003	P.C.B., AROCLOR 1016/1242	MCG/G	2.	

DATE COMPLETED: 7/13/78

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WATERTOWN STATE OFFICE BDG
317 WASHINGTON STREET
WATERTOWN, N.Y. 13601

SUBMITTED BY: J LUZ

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

AB ACCESSION NO: 00629 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 EHC ALBANY
ROGRAM: 520 INDUSTRIAL WASTES
TATION (SOURCE) NO:
DRAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
OORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
OMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC, UTICA (C)

EXACT SAMPLING POINT: SAMPLE SITE #5 LUZ-6
YPE OF SAMPLE: 39 MISC. LIQ. WASTE
O/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/15
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

	PARAMETER	UNIT	RESULT	NOTATION
038003	P.C.B., AROCLOR 1016/1242	MCG/G	47500.	
38103	P.C.B., AROCLOR 1254	MCG/G	3700.	
039803	P.C.B., AROCLOR 1221	MCG/G	0.1	LT

47500
3700
51200

ATE COMPLETED: 7/05/78

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WATERTOWN STATE OFFICE BDG
317 WASHINGTON STREET
WATERTOWN, N.Y. 13601

SUBMITTED BY: J LUZ

DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00628 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 30"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC DUPLICATE RESPORT

EXACT SAMPLING POINT: SAMPLE SITE ~~#6 LUZ-6~~
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/15 7/14/77
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
38003	P.C.B., AROCLOR 1016/1242	MCG/G	1800.	
038103	P.C.B., AROCLOR 1254	MCG/G	29000.	
			30,800	

DATE COMPLETED: 3/22/79

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
UTICA STATE OFFICE BUILDING
207 GENESEE STREET
UTICA, N.Y. 13500

SUBMITTED BY: LUZ

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00627 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC, UTICA (C)

EXACT SAMPLING POINT: SAMPLE ~~SITE #7 LUZ #7~~
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE 7/04/77
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/04/15
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

	PARAMETER	UNIT	RESULT	NOTATION
038003	P.C.B., AROCLOR 1016/1242	MCG/G	8.	
038103	P.C.B., AROCLOR 1254	MCG/G	60.	
039803	P.C.B., AROCLOR 1221	MCG/G	0.1	LT

DATE COMPLETED: 7/05/78

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WATERTOWN STATE OFFICE BDG
317 WASHINGTON STREET
WATERTOWN, N.Y. 13601

SUBMITTED BY: LUZ

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

NTERIM REPORT INTERIM REPORT INTERIM REPORT

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

EPORTING LAB: 10 EHC ALBANY
AB ACCESSION NO: 07554 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11
ROGRAM: 520 INDUSTRIAL WASTES
TATION (SOURCE) NO:
RAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
OORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
OMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC, C UTICA

XACT SAMPLING POINT: SAMPLE SITE #8 LUZ-8
YPE OF SAMPLE: 39 MISC. LIQ. WASTE
O/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/15
EPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
10001	IRON	MG/L	0.76	
09701	CADMIUM	MG/L	0.03	LT
09801	CHROMIUM, (ALL VALENCES)	MG/L	RESULT TO FOLLOW	
09901	COPPER	MG/L	0.05	LT
10901	ZINC	MG/L	0.05	LT

ATE COMPLETED: 8/10/77

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WATERTOWN STATE OFFICE BDG
317 WASHINGTON STREET
WATERTOWN, N.Y. 13601

SUBMITTED BY: J LUZ

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH-CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 07555 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 10 EHC ALBANY
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: 12 NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC C UTICA

EXACT SAMPLING POINT: SAMPLE SITE #9 LUZ-9
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/16
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
010001	IRON	MG/L	5.6	
009701	CADMIUM	MG/L	0.02	LT
009801	CHROMIUM, (ALL VALENCES)	MG/L	0.1	
009901	COPPER	MG/L	0.05	LT
010901	ZINC	MG/L	0.05	

DATE COMPLETED: 8/11/77

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WATERTOWN STATE OFFICE BDG
317 WASHINGTON STREET
WATERTOWN, N.Y. 13601

SUBMITTED BY: J LUZ

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00634 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 GRIFFIN LAB
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC UTICA (C)

EXACT SAMPLING POINT: SAMPLE SITE #10 LUZ-10
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/16
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
041109	TRICHLOROETHYLENE	MCG/L	1000.	GT

DATE COMPLETED: 7/22/77

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WATERTOWN STATE OFFICE BDG
317 WASHINGTON STREET
WATERTOWN, N.Y. 13601

SUBMITTED BY: J LUZ

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00635 YR/MO/DAY/HR SAMPLE REC'D: 77/07/15/11

REPORTING LAB: 17 GRIFFIN LAB
PROGRAM: 520 INDUSTRIAL WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 3202 COUNTY: ONEIDA
COORDINATES: 43 DEG 06' 20"N, 75 DEG 12' 43"W
COMMON NAME INCL SUBW'SHED: UNIVERSAL WASTE INC UTICA(C)

EXACT SAMPLING POINT: SAMPLE SITE #1 LUZ#10
TYPE OF SAMPLE: 39 MISC. LIQ. WASTE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 07/14/16
REPORT SENT TO: CO (1) RO (2) LPHE (0) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
041109	TRICHLOROETHYLENE	MCG/L	1000.	GT

DATE COMPLETED: 7/22/77

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WATERTOWN STATE OFFICE BDG
317 WASHINGTON STREET
WATERTOWN, N.Y. 13601

SUBMITTED BY: J LUZ

REFERENCE 8

REFERENCE # 8
PAGE 1 OF 1

Wehran EMCON Northeast

TELEPHONE CONVERSATION MEMORANDUM

Client: Ebasco
Project: Universal Waste Inc.
Proj. No.: 85595-001.000
Date: 9/19/95
Time: 10:10

Call To/From: Sri Mandanini
Representing: NYSDEC Hazardous Waste Site Control
Phone No.: (518) 457-0639

Summary of Conversation: Classification of Universal Waste Site

Site is Class 2 = confirmed hazardous waste w/ significant threat to health and environment

Currently - offsite investigation by DEC to see if offsite contamination is getting on site

PRP doing on site investigation: soil, geoprobes ground water

Has been class 2 for awhile

Referred to RI/FS in 1991

Copies To

By Julia A. Gilbert

REFERENCE 9

CLASSIFICATION CODE: 2 REGION: 6 SITE CODE: 633009
EPA ID: NYD980509335

NAME OF SITE : Universal Waste, Inc.
STREET ADDRESS: Wurz Avenue
TOWN/CITY: Utica COUNTY: Oneida ZIP: 13502

SITE TYPE: Open Dump-X Structure- Lagoon- Landfill- Treatment Pond-
ESTIMATED SIZE: 20 Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: Universal Waste, Inc.
CURRENT OWNER ADDRESS.: Wurz Ave., Utica, NY
OWNER(S) DURING USE...: Universal Waste, Inc.
OPERATOR DURING USE...: Universal Waste Inc.
OPERATOR ADDRESS......: Wurz Ave., Utica, NY
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From 1957 To unknown

SITE DESCRIPTION:
This site was formerly the municipal dump for the Utica area. The dump was closed and the area redeveloped by several companies. Universal Waste operated a salvage yard on the site, and was engaged in salvaging copper from electrical transformers up until several years ago. It was reported that the company indiscriminately dumped transformer oil on the site. Soil analysis by this department confirmed contamination by PCB's. Trichloroethylene was also detected in a storm sewer discharge near the company site boundary. A PRP draft Site Investigation (SI) was prepared and submitted to the DEC for review, but was disapproved because the results were inconclusive. Administrative hearings have been held.

HAZARDOUS WASTE DISPOSED: Confirmed-X Suspected-

TYPE	QUANTITY (units)
PCB's	unknown
Trichloroethylene	unknown

TICAL DATA AVAILABLE:
Surface Water-X Groundwater-X Soil-X Sediment-X

CONTRAVENTION OF STANDARDS:
Groundwater-X Drinking Water- Surface Water-X Air-

LEGAL ACTION:

TYPE..: Consent Order State- X Federal-
STATUS: Negotiation in Progress- X Order Signed-

REMEDIAL ACTION:

Proposed- Under design- In Progress- Completed-
NATURE OF ACTION:

GEOTECHNICAL INFORMATION:
SOIL TYPE: Fill material and alluvium
GROUNDWATER DEPTH: Unknown

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Contamination of a tributary of the Mohawk River by PCB's and TCE has been documented. Groundwater has also been contaminated.

ASSESSMENT OF HEALTH PROBLEMS:

All residences and businesses in the area use public water supplies. The site is in an industrial area, with the nearest residence approximately 2000 feet away. The site is adequately fenced, however, workers could be exposed to contaminants via direct contact exposure. The site is in close proximity to the Mohawk River and is in an active floodplain. The nearest potentially affected public water supply drawing from the river would be Frankfort Village which is 10 miles downstream. This has been tested with no positive results. Ambient air concentrations of PCBs and TCE are very low, and there are no residential areas in immediate vicinity.

REFERENCE 10

REFERENCE # 10
PAGE 1 OF 212

EBASCO ENVIRONMENTAL

Interoffice Correspondence

DATE August 24, 1992

FILE REF [DPT-0824A

TO EDGAR AGUADO

OFFICE LOCATION LYNDHURST

FROM A. OLIS

OFFICE LOCATION LYNDHURST

SUBJECT **CLP QUALITY ASSURED DATA PACKAGE**

Attached please find a copy of the following validated data package(s) received from the RSCC for the

CASE#/SAS#	LABORATORY	SAMPLES	ANALYSIS
17902	EEAST	8W/5S	ORGANICS

The number of Form 1's were checked and found to agree with the number of samples listed in the Record of Communication. Any problems with the data package(s), *e.g.* illegible sample results or validation flags, missing Form 1's, etc. must be brought to my attention within one week. If no specific complaints are received within this period, the package will be considered complete and problem-free. Please also note that RSCC will archive all the data packages and store them in the warehouse. Once stored, it becomes difficult to retrieve the packages.

Please sign below in acknowledgment of receipt of this package and return one copy to me.

REPLY BY: 8/31/92

SIGNATURE: DATE:

PROBLEMS: Specify sample and/or page numbers:

- ☐ Illegible validation flags
- ☐ Illegible/missing form 1's
- ☐ Other (PLEASE SPECIFY):

COPY FOR: ☒ SITE MANAGER ☐ CLP FILE

EBASCO ENVIRONMENTAL — **Interoffice Correspondence**

DATE August 24, 1992 FILE REF

TO EDGAR AGUADO OFFICE LOCATION LYNDHURST [DPT-0824A

FROM A. OLIS OFFICE LOCATION LYNDHURST

SUBJECT **CLP QUALITY ASSURED DATA PACKAGE**

Attached please find a copy of the following validated data package(s) received from the RSCC for the

CASE#/SAS#	LABORATORY	SAMPLES	ANALYSIS
17902	EEAST	8W/5S	ORGANICS

The number of Form 1's were checked and found to agree with the number of samples listed in the Record of Communication. Any problems with the data package(s), *e.g.* illegible sample results or validation flags, missing Form 1's, etc. must be brought to my attention within one week. If no specific complaints are received within this period, the package will be considered complete and problem-free. Please also note that RSCC will archive all the data packages and store them in the warehouse. Once stored, it becomes difficult to retrieve the packages.

Please sign below in acknowledgment of receipt of this package and return one copy to me.

REPLY BY: 8/31/92

SIGNATURE: DATE:

PROBLEMS: Specify sample and/or page numbers:

- ☐ Illegible validation flags
- ☐ Illegible/missing form 1's
- ☐ Other (PLEASE SPECIFY):

COPY FOR: ☐ SITE MANAGER ☒ CLP FILE

RECORD OF COMMUNICATION

☐ PHONE CALL
☐ OTHER (SPECIFY)

TO:

GEORGE KARRAS
EPA/MMB

FROM:

RSCC/ESAT

DATE 5/27/92

TIME

SUBJECT

CLP Organic Data Packages for Quality Assurance Review

SUMMARY OF COMMUNICATION

Attached are the following CLP Organic/SAS Data Packages to be reviewed for Quality Assurance.

SITE	CASE/SAS NO.	LABORATORY	MATRIX	NO. of SAMPLES
UNIVERSAL WASTE AEBA/SSI	17902	EEAST	WATER	8
			SOIL	5

ok
6/4/92

CONCLUSIONS, ACTION TAKEN OR REQUIRED

RECEIVED
AUG 14 1992
S & M BRANCH

INFORMATION COPIES
TO:

EPA Form 1300-6 (7-72) REPLACES EPA HQ FORM 5300-3 WHICH MAY BE USED UNTIL SUPPLY IS EXHAUSTED.

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 17902 SDG No. 84B25 LABORATORY EEAST SITE UNIVERSAL

DATA ASSESSMENT:

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: Cecelia N. Mench Date: 7/1/1992

Verified By: ______________ Date: __/__/199_

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following analytes in the samples shown were qualified because of holding time:

PEST All analytes, except alpha-BHC in BGB32, have been qualified "J" due to holding time exceedence in samples BGB32–36, 33DL, 34DL and 36DL.

BNA All analytes in semivolatile samples BGB32–36 have been qualified "J".

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non- detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

A) Method blank contamination

PEST endrin aldehyde - 28, 39

BNA TICS qualified unusable (R)

BGB25 - Rt 6.97
28 - 6.96
31 - 6.98, 14.85
32 - 6.24, 9.20
35 - 6.30, 9.23
36 29.57
38 - 6.97
39 - 6.96

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

VOA methylene chloride - BGB31, 32, 33, 34, 34RE, 35, 36, 36 RE
carbon disulfide - 31
toluene - 31, 32, 36

PEST DDT - 25, 28, 31, 38, 39

BNA Bis(2-ethylhexyl)phthalate - 25, 31, 32, 33, 34, 35, 36, 38, 39

C) Trip blank contamination

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

BNA

TICS qualified "R"

BGB25 - RT 29.49
28 - 6.78
31 - 6.29, 6.78
38 - 29.50
39 - 6.79, 29.49, 29.64

C) Trip blank contamination

DATA ASSESSMENT

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

VOA

qualified "J" due to % RSD exceedance:
Chloroethane - 25, 28, 29, 30, 31, 37, 38 ✓

acetone - 39 ✓

qualified "J" due to % D exceedance
Chloromethane - 36RE ✓
2-hexanone - 39 ✓

BNA

qualified "J" due to % RSD exceedance
dimethyl phthalate - 25, 28, 29, 30, 31, 38, 39
Benzo (k) fluoranthene - 25, 28, 29, 30, 31, 38, 39

DATA ASSESSMENT

6. SURROGATES/ SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/ SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/ SMC recovery:

VOA qualified "J"
Chloromethane → Bromoform - 34, 34RE
(4-methyl-2-pentanone → xylene were previously qualified unusable for IS criteria.)

Pest all positive values in sample BGB36 would have been qualified "J" due to high surrogate recoveries, but were previously qualified for other criteria.

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ" only if IS area is < 50%. Non detects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

VOA qualified "R" due to severe drop of IS areas (<25%)
4-methyl-2-pentanone → xylene (IS#3) - 34, 34RE ✓

qualified "J" due to low IS areas
Chloromethane → 2-Butanone (IS#1) - 36

1,1,1-trichloroethane → Bromoform (IS#2) - 32, 36, 36RE
4-methyl-2-pentanone → xylene (IS#3) - 32, 36, 36RE
previously qualified "J" for other criteria
1,1,1-trichloroethane → Bromoform - 34, 34RE

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

VOA It is the reviewer's professional opinion that chloroform was falsely identified in BGB33, and has been changed to a non-detect.

BNA The reviewer determined that 2,6-dinitrotoluene was falsely identified and has been changed to a non-detect in BGB36

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25% The following analytes in the samples shown were qualified because of compound identification:

qualified unusable (R) %D>90%	qualified 'J' (%D=25→50)	qualified JN (%D2:
lindane - 28	DDT - 30, 29	DDD - 35
delta-BHC - 30		gamma-Chlordane - 3:
alpha-BHC - 32		

false negatives qualified "N" due to interference from AR1254
DDE - 35, 36, 36DL

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

VOA 1) Target compounds detected at concentrations < 1.0 ppb are routinely not reported by the lab.

2) The instrument ID was incorrectly reported on all raw data for BFB B6619, standard B6621 and all associated samples (B6622, B6631 - B6637). The lab confirms the correct instrument should be HPV6.

12. CONTRACTUAL NON-COMPLIANCE:

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used:

	USE	DO NOT USE
VOA	BGB34RE (A0920)	BGB34 (C7583)
	BGB36RE (A0898)	BGB36 (C7581)
PEST	BGB33	BGB33DL
	BGB34	BGB34DL
	BGB36	BGB36DL

DATA ASSESSMENT

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

3) The following TICS have been qualified as unusable (R) because they are common lab contaminants:

BGB33 - RT 5.64
BGB36 - 5.65

ST 4) GC/MS confirmation was performed on the diluted analyses only.

5) The reviewer removed the "P" qualifiers which were applied unnecessarily.

BNA 6) Target compounds detected at concentrations less than 1.0 ppb in the extract were not reported.

7) TICS eluting before the first surrogate were not reported.

8) The CRQLS were corrected where necessary.

9) The TIC at RT 6.44 in SBLK01 was qualified "R" because it is an aldol condensation product.

DPO: [ ] ACTION [ ] FYI

Region II

REFERENCE # 10

PAGE 14 OF 21

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 17902 LABORATORY EEAST

SDG NO. BGB25 DATA USER EBASCO

SOW OLMC1.4 REVIEW COMPLETION DATE 7/1/92

NO. OF SAMPLES 8 WATER 5 SOIL ____ OTHER

REVIEWER [ ] ESD [ ] ESAT [✓] OTHER, CONTRACT/CONTRACTOR EBASCO

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	O	M	M	
2. GC-MS TUNE/ GC PERFORMANCE	O	O	O	
3. INITIAL CALIBRATIONS	O	O	O	
4. CONTINUING CALIBRATIONS	O	O	O	
5. FIELD BLANKS ("F" = not applicable)	O	O	O	
6. LABORATORY BLANKS	O	O	O	
7. SURROGATES	M	O	O	
8. MATRIX SPIKE/DUPLICATES	O	O	O	
9. REGIONAL QC ("F" = not applicable)	F	F	F	
10. INTERNAL STANDARDS	M	O		
11. COMPOUND IDENTIFICATION	O	O	O	
12. COMPOUND QUANTITATION	O	O	O	
13. SYSTEM PERFORMANCE	O	O	O	
14. OVERALL ASSESSMENT	M	M	M	

O = No problems or minor problems that do not affect data usability.
X = No more than *about* 5% of the data points are qualified as either estimated or unusable.
M = More than *about* 5% of the data points are qualified as estimated.
Z = More than *about* 5% of the data points are qualified as unusable.

DPO ACTION ITEMS: holding times, surrogates contamination, internal standard areas.

AREAS OF CONCERN: Numerous errors involving software integration and data entry were observed. I.E. incorrect instrument ID between CLP Forms and raw data; discrepancies between RRFs reported and those reproduced from quant report. (IS area was different).

SOP NO. HW-6
Revision #8

CLP ORGANICS DATA REVIEW AND PRELIMINARY REVIEW

BY: Leon Lazarus Date: Jan. 2 1992
Leon Lazarus, Environmental Scientist
Toxic and Hazardous Waste Section

BY: George Karras Date: January 3, 1992
George Karras, Chemist
Toxic and Hazardous Waste Section

BY: Stelios Gerazounis Date: 1/3/1992
Stelios Gerazounis, Chemist
Toxic and Hazardous Waste Section

CONCURRED BY: Kevin W. Kubik Date: 1/3/92
Kevin Kubik, Chief
Toxic and Hazardous Waste Section

APPROVED BY: Robert Runyon Date: 1/7/92
Robert Runyon, Chief
Monitoring Management Branch

STANDARD OPERATING PROCEDURE
Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 17902 LAB: EEAST

SITE: UNIVERSAL

		YES	NO	N/A
1.0	Data Completeness and Deliverables			
1.1	Have any missing deliverables been received and added to the data package?	[✓]	___	___
ACTION:	Call lab for explanation/resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-Compliance" section of reviewer narrative.			
1.2	Was SMO CCS checklist included with package?	[ ]	✓	___
2.0	<u>Cover Letter SDG Narrative</u>			
2.1	Is the Narrative or Cover Letter Present?	[✓]	___	___
2.2	Are Case Number and/or SAS number contained in the Narrative or Cover letter?	[✓]	___	___
3.0	<u>Data Validation Checklist</u>			

The following checklist is divided into three parts. Part A is filled out if the data package contains any VOA analyses, Part B for any BNA analyses and Part C for Pesticide/PCBs.

Does this package contain:

	YES	NO
VOA Data?	✓	___
BNA Data?	✓	___
Pesticide/PCB data?	✓	___

Action: Complete corresponding parts of checklist.

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	YES	NO	N/A

PART A: VOA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

	YES	NO	N/A
1.1 Are the Traffic Report Forms present for all samples?	[√]		

ACTION: If no, contact lab for replacement of missing or illegible copies.

	YES	NO	N/A
1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?	√	[ ]	

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all Non-Detects "UJ".

ACTION: If both VOA vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, flag all positive results "J" and all non-detects "R".

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YES NO N/A

2.0 Holding Times

2.1 Have any VOA technical holding times, determined from date of collection to date of analysis, been exceeded? ___ ✓ ___

If unpreserved, aqueous samples maintained at 4°C which are to be analyzed for aromatic hydrocarbons must be analyzed within 7 days of collection. If preserved with HCl (pH<2) and stored at 4°C, then aqueous samples must be analyzed within 14 days of collection. If uncertain about preservation, contact sampler to determine whether or not samples were preserved.

The holding time for soils is 10 days.

Table of Holding Time Violations

Sample ID	Sample Matrix	Preserved?	Date Sampled	(See Traffic Report) Date Lab Received	Date Analyzed

ACTION: If technical holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("UJ"), and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results must be qualified "J", but the reviewer may determine that non-detect data are unusable (R). If holding times are exceeded by more than 28 days, all non detect data are unusable (R).

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		YES	NO	N/A
3.0	System Monitoring Compound (SMC) Recovery (Form II)			
3.1	Are the VOA SMC Recovery Summaries (Form II) present for each of the following matrices:			
	a. Low Water	[✓]	___	___
	b. Low Soil	[✓]	___	___
	c. Med Soil	[ ]	___	✓
3.2	Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices:			
	a. Low Water	[✓]	___	___
	b. Low Soil	[✓]	___	___
	c. Med Soil	[ ]	___	✓
	ACTION: Call lab for explanation/ resubmittals. If missing deliverables are unavailable, document effect in data assessments.			
3.3	Were outliers marked correctly with an asterisk?	[✓]	___	___
	ACTION: Circle all outliers in red.			
3.4	Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank?	✓	[ ]	___
	If yes, were samples re-analyzed?	[✓]	___	___
	Were method blanks re-analyzed?	[ ]	___	✓

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YES NO N/A

ACTION: If recoveries are > 10% but 1 or more compounds fail to meet SOW specifications:

1. All positive results are qualified as estimated (J).
2. Flag all non-detects as estimated detection limits ("UJ") where recovery is less than the lower acceptance limit.
3. If SMC recoveries are above allowable levels, do not qualify non-detects.

If any system monitoring compound recovery is <10% :

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as unusable ("R").

Professional judgement should be used to qualify data that only have method blank SMC recoveries out of specification in both original and re-analyses. Check the internal standard areas.

3.5 Are there any transcription/calculation errors between raw data and Form II? ___ [✓] ___

ACTION: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors in the data assessment.

4.0 <u>Matrix Spikes (Form III)</u>

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [✓] ___ ___

	YES	NO	N/A
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:			
a. Low Water	[✓]	___	___
b. Low Soil	[✓]	___	___
c. Med Soil	[ ]	___	✓

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How many VOA spike recoveries are outside QC limits?

Water	Soils
0 out of 10	0 out of 10

4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soils
0 out of 5	0 out of 5

ACTION: No action is taken based on MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

5.0 Blanks (Form IV)

	YES	NO	N/A
5.1 Is the Method Blank Summary (Form IV) present?	[✓]	___	___
5.2 Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed for each SDG or every 20 samples of similar matrix (low water, low soil, medium soil), whichever is more frequent?	[✓]	___	___

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	YES	NO	N/A
5.3 Has a VOA method/instrument blank been analyzed at least once every twelve hours for each concentration level and GC/MS system used?	[✓]	___	___

ACTION: If any method blank data are missing, call lab for explanation/ resubmittal. If method blank data are not available, reject (R) all associated positive data. However, using professional judgement, the data reviewer may substitute field blank or trip blank data for missing method blank data.

5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra.

	YES	NO	N/A
Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs?	[✓]	___	___

ACTION: Use professional judgement to determine the effect on the data.

6.0 Contamination

NOTE: "Water blanks", "drill blanks", and distilled water blanks" are validated like any other sample, and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

	YES	NO	N/A
6.1 Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for VOAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture when necessary.	✓	[ ]	___
6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?	✓	[ ]	___

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

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YES NO N/A

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Blanks may not be qualified because of contamination in another blank. Field Blanks & Trip Blanks must be qualified for system monitoring compound, instrument performance criteria, spectral or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If any blanks are grossly contaminated, all associated data should be qualified as unusable (R).

	Sample conc > CRQL but < 10x blank value	Sample conc < CRQL & <10x blank value	Sample conc > CRQL & >10x blank value
Methylene Chloride Acetone Toluene 2-Butanone	Flag sample result with a "U;	Report CRQL & qualify "U"	No qualification is needed

	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5x blank value
Other Contam-inants	Flag sample result with a "U"	Report CRQL & qualify "U"	No qualification is needed

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

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	YES	NO	N/A
ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).			
6.3 Are there field/rinse/equipment blanks associated with every sample?	[✓]	___	___
ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.			
7.0 <u>GC/MS Instrument Performance Check (Form V)</u>			
7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)?	[✓]	___	___
7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift?	[✓]	___	___
7.3 Has an instrument performance compound been analyzed for every twelve hours of sample analysis per instrument?	[✓]	___	___

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	YES	NO	N/A

ACTION: List date, time, instrument ID, and sample analysis for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

	YES	NO	N/A
7.4 Have the ion abundances been normalized to m/z 95?	[✓]		

ACTION: If mass assignment is in error, qualify all associated data as unusable (R).

	YES	NO	N/A
7.5 Have the ion abundance criteria been met for each instrument used?	[✓]		

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

	YES	NO	N/A
7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)		[✓]	

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	YES	NO	N/A
7.7 Have the appropriate number of significant figures (two) been reported?	[✓]		

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.

	YES	NO	N/A
7.8 Are the spectra of the mass calibration compound acceptable?	[✓]		

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 Target Compound List (TCL) Analytes

8.1 Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following:

	YES	NO	N/A
a. Samples and/or fractions as appropriate	[✓]		
b. Matrix spikes and matrix spike duplicates	[✓]		
c. Blanks	[✓]		

8.2 Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?

	YES	NO	N/A
a. Samples and/or fractions as appropriate	[✓]		
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[✓]		
c. Blanks	[✓]		

ACTION: If any data are missing, take action specified in 3.2 above.

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		YES	NO	N/A
8.3	Are the response factors shown in the Quant Report?	[ ]	✓	
8.4	Is chromatographic performance acceptable with respect to:			
	Baseline stability?	[✓]		
	Resolution?	[✓]		
	Peak shape?	[✓]		
	Full-scale graph (attenuation)?	[✓]		
	Other: ______________________	[ ]		

ACTION: Use professional judgement to determine the acceptability of the data.

		YES	NO	N/A
8.5	Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample?	[✓]		

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/Non-compliance".

		YES	NO	N/A
8.6	Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[✓]		
8.7	Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		

	YES	NO	N/A
8.8 Do sample and standard relative ion intensities agree within 20%?	[✓]	___	___

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (U) at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.6, 8.7, and 8.8.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 Tentatively Identified Compounds (TIC)

	YES	NO	N/A
9.1 Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?	[✓]	___	___

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

	YES	NO	N/A
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Blanks	[✓]	___	___

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "JN" qualifier if missing.

	YES	NO	N/A
9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene- a VOA TCL analyte - and should not be reported as a TIC)?	___	LA	___

ACTION: Flag with "R" any TCL compound listed as a TIC.

	YES	NO	N/A
9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?	LA	___	___
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	LA	___	___

ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate.

Also, when a compound is not found in any blank, but is detected in a sample and is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable (R). (i.e. Common Lab Contaminants: CO_2 (M/E 44), Siloxanes (M/E 73) Hexane, Aldol Condensation Products, Solvent Preservatives, and related by products - see Functional Guidelines for more guidance).

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	YES	NO	N/A
10.0 Compound Quantitation and Reported Detection Limits			
10.1 Are there any transcription/calculation errors in Form I results? Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?	___	[✓]	___
10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	[✓]	___	___

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions".

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and its associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

	YES	NO	N/A
11.0 Standards Data (GC/MS)			
11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration?	[✓]	___	___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

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YES NO N/A

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction at concentrations of 10, 20, 50, 100, 200 ug/l? Are there separate calibrations for low water/med soils and low soil samples? [✓] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Were all low level soil standards, blanks and samples analyzed by heated purge? [✓] ___ ___

ACTION: If low level soil samples were not heated during purge, qualify positive hits "J" and non-detects "R".

12.3 Are response factors stable for VOA's over the concentration range of the calibration (%Relative Standard Deviation (%RSD) <30.0%)? [✓] ___ ___

ACTION: Circle all outliers in red.

NOTE: Although 11 VOA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

ACTION: If %RSD > 30.0%, qualify associated positive results for that analyte "J" and non-detects using professional judgement. When RSD > 90%, flag all non-detects for that analyte R (unusable).

NOTE: Analytes previously qualified "U" for blank contamination are still considered as "hits" when qualifying for initial calibration criteria.

12.4 Are the RRFs above 0.05? [✓] ___ ___

Action: Circle all outliers in red.
Action: If any RRF are < 0.05, qualify associated non-detects (R) and flag associated positive data as estimated (J).

	YES	NO	N/A
12.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least 2 values, but if errors are found, check more.)	___	[✓]	___

13.0 GC/MS Continuing Calibration (Form VII)

	YES	NO	N/A
13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the volatile fraction?	[✓]	___	___
13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?	[✓]	___	___

ACTION: List below all sample analyses that were not within twelve hours of the previous continuing calibration analysis.

____

____

____

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

	YES	NO	N/A
13.3 Do any volatile compounds have a % Difference (% D) between the initial and continuing RRF which exceeds the ± 25% criteria?	✓	[ ]	___

ACTION: Circle all outliers in red.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated. When % D is above 90%, reject all non-detects for that analyte (R) unusable.

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	YES	NO	N/A
.4 Do any volatile compounds have a RRF <0.05?	[ ]	✓	

ACTION: Circle all outliers in red.

ACTION: If the RRF <0.05, qualify associated non-detects as unusable (R) and "J" associated positive values.

	YES	NO	N/A
.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more.)		[✓]	

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions".

Internal Standard (Form VIII)

	YES	NO	N/A
4.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to + 100%) for each continuing calibration?	[ ]	✓	

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
BGB36	BCM	17325	18564	74256
BGB32 MS	"	17937	"	"
BGB32	DFB	66767	78380	156761
BGB36	"	63712	"	"
BGB34	"	59512	"	"
BGB32 MS	"	60588	"	"
BGB32 MSD	"	73466	"	"

(Attach additional sheets if necessary.)

SAMPLE	IS	AREA	LOWER LIMIT	UPPER LIMIT
BGB32	CBZ	40502	60094	240376
- 34	"	23937	"	"
- 36	"	43339	"	"
- 32MS	"	37100	"	"
- 32MSD	"	47843	"	"
- 36RE	DFB	135882	142610	570438
- 36RE	CBZ	95453	120174	480694
- 34RE	DFB	119064	148924	595696
- 34RE	CBZ	58763	123418	493672

	YES	NO	N/A

ACTION: 1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results quantitated with this internal standard.

2. Non-detects associated with IS area counts > 100% should not be qualified.

3. If IS area is below the lower limit (< 50%), qualify all associated non-detects (U values) "J". If extremely low area counts are reported, (< 25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable ("R").

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [✓] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for VOA analysis? [✓] ___ ___

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

YES NO N/A

PART B: BNA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples? [✓] ___ ___

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data? ✓ [ ] ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated ("J"). If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? ✓ [ ] ___

Continuous extraction of water samples for BNA analysis must be started within seven days of the date of collection. Soil/ sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

YES NO N/A

Table of Holding Time Violations

(See Traffic Report)

Sample	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed
		see attached sheet			

ACTION: If technical holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("UJ"), and document in the narrative that holding times were exceeded.

If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable ("R"). If holding times are exceeded by more than 28 days, all non detect data are unusable (R).

3.0 Surrogate Recovery (Form II)

3.1 Are the BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:

	YES	NO	N/A
a. Low Water	[✓]		
b. Low Soil	[✓]		
c. Med Soil	[ ]		✓

		YES	NO	N/A
3.2	Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:			
	a. Low Water	[✓]	___	___
	b. Low Soil	[✓]	___	___
	c. Low Soil	[ ]	___	✓

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

		YES	NO	N/A
3.3	Were outliers marked correctly with an asterisk?	[ ]	___	✓

ACTION: Circle all outliers in red.

		YES	NO	N/A
3.4	Were two or more base-neutral <u>OR</u> acid surrogate recoveries out of specification for any sample or method blank?	[ ]	✓	___
	If yes, were samples reanalyzed?	[ ]	___	✓
	Were method blanks reanalyzed?	[ ]	___	✓

ACTION: If all BNA surrogate recoveries are > 10% but two within the base-neutral or acid fraction do not meet SOW specifications, <u>for the affected fraction only (i.e. base-neutral or acid compounds)</u>:

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.
3. If recoveries are greater than the upper acceptance limit, do not qualify non-detects.

YES NO N/A

If any base-neutral or acid surrogate has a recovery of <10%:

1. Positive results for the fraction with <10% surrogate recovery are qualified with "J".

2. Non-detects for that fraction should be qualified as unusable (R) .

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and reanalyses. Check the internal standard areas.

3.5 Are there any transcription/calculation errors between raw data and Form II? ___ [✓] ___

ACTION: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [✓] ___ ___

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

a. Low Water [✓] ___ ___

b. Low Soil [✓] ___ ___

c. Med Soil [ ] ___ ✓

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

YES NO N/A

4.3 How many BNA spike recoveries are outside QC limits?

Water	Soils
2 out of 22	1 out of 22

4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soils
0 out of 11	0 out of 11

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

		YES	NO	N/A
5.1	Is the Method Blank Summary (Form IV) present?	✓		
5.2	Frequency of Analysis: Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each extraction batch?	✓		
5.3	Has a BNA method blank been analyzed for each GC/MS system used? (See SOW p. D - 59/SV, Section 8.7)	✓		

ACTION: If any method blank data are missing, call lab for explanation/resubmittal. If not available, use professional judgement to determine if the associated sample data should be qualified.

	YES	NO	N/A
5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra.			
Is the chromatographic performance (baseline stability) for each instrument acceptable for BNAs?	[✓]	___	___

ACTION: Use professional judgement to determine the effect on the data.

6.0 Contamination

Note: "Water blanks", "drill blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify the data. Do not confuse them with the other QC blanks discussed below.

	YES	NO	N/A
6.1 Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for BNAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture where necessary.	✓	[ ]	___
6.2 Do any field/rinse/ blanks have positive BNA results (TCL and/or TIC)?	✓	[ ]	___

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

Note: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Blanks may not be qualified because of contamination in another blank . Field Blanks must be qualified for surrogate, spectral, instrument performance or calibration QC problems.

YES NO N/A

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If gross contamination exists, all data in the associated samples should be qualified as unusable (R).

Sample conc > CRQL but < 10x blank	Sample conc <CRQL & is< 10x blank value	Sample conc > CRQL value & >10x blank
Common Phthalate Esters		
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed
Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & >5 blank value
Other Contaminants		
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample? ✓ ___ ___

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.

	YES	NO	N/A
7.0 GC/MS Instrument Performance Check			
7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)?	[✓]	___	___
7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve hour shift?	[✓]	___	___
7.3 Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument?	[✓]	___	___

ACTION: List date, time, instrument ID, and sample analyses for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS
____	____	____	____
____	____	____	____
____	____	____	____

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

ACTION: If mass assignment is in error, flag all associated sample data as unusable (R).

	YES	NO	N/A
7.4 Have the ion abundances been normalized to m/z 198?	[✓]	___	___

	YES	NO	N/A
7.5 Have the ion abundance criteria been met for each instrument used?	[✓]	___	___

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

	YES	NO	N/A
7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)	___	[✓]	___
7.7 Have the appropriate number of significant figures (two) been reported?	[✓]	___	___

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.

	YES	NO	N/A
7.8 Are the spectra of the mass calibration compound acceptable?	[✓]	___	___

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 <u>Target Compound List (TCL) Analytes</u>

8.1 Are the Organic Analysis Data Sheets (Form I BNA) present with required header information on each page, for each of the following:

	YES	NO	N/A
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Matrix spikes and matrix spike duplicates	[✓]	___	___
c. Blanks	[✓]	___	___

	YES	NO	N/A
8.2 Has GPC cleanup been performed on all soil/ sediment sample extracts?	[✓]	___	___

ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in "Contract Problems/Non-Compliance".

8.3 Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?

	YES	NO	N/A
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[✓]	___	___
c. Blanks	[✓]	___	___

ACTION: If any data are missing, take action specified in 3.2 above.

	YES	NO	N/A
8.4 Are the response factors shown in the Quant Report?	[ ]	✓	___

8.5 Is chromatographic performance acceptable with respect to:

	YES	NO	N/A
Baseline stability?	[✓]	___	___
Resolution?	[✓]	___	___
Peak shape?	[✓]	___	___
Full-scale graph (attenuation)?	[✓]	___	___
Other:______________________	[ ]	___	___

ACTION: Use professional judgement to determine the acceptability of the data.

	YES	NO	N/A
8.6 Are the lab-generated standard mass spectra of identified BNA compounds present for each sample?	[✓]	___	___

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/ Non-compliance". If spectra are missing, reject all positive data.

	YES	NO	N/A
8.7 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[✓]	___	___
8.8 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]	___	___
8.9 Do sample and standard relative ion intensities agree within 20%?	[✓]	___	___

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (Presumptive evidence of the presence of the compound) or changed to not detected (U) at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.7, 8.8, and 8.9.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 <u>Tentatively Identified Compounds (TIC)</u>

	YES	NO	N/A
9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?	[✓]	___	___

	YES	NO	N/A
9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:			
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Blanks	[✓]	___	___

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "JN" qualifier if missing.

	YES	NO	N/A
9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene a VOA TCL - and should not be reported as a TIC)?	___	[✓]	___

ACTION: Flag with "R" any TCL compound listed as a TIC.

	YES	NO	N/A
9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]	___	___
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	[✓]	___	___

ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable (R).

	YES	NO	N/A
10.0 Compound Quantitation and Reported Detection Limits			
10.1 Are there any transcription/calculation errors in Form I results? Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?	___	[✓]	___
10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	[✓]	___	___

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and it's associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red " X" across the entire page of all Form I's that should not be used, including any in the summary package.

	YES	NO	N/A
11.0 Standards Data (GC/MS)			
11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant, Reports) present for initial and continuing calibration?	[✓]	___	___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

YES NO N/A

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction? [✓] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are response factors stable for BNAs over the concentration range of the calibration? (% Relative standard deviation (%RSD) < 30.0%) [✓] ___ ___

ACTION: Circle all outliers in red.

NOTE: Although 20 BNA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

ACTION: If the % RSD is > 30.0%, qualify positive results for that analyte "J" and non-detects using professional judgement. When RSD > 90%, flag all non-detect results for that analyte R (unusable).

NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.

12.3 Are all BNA compound RRFs > 0.05? [✓] ___ ___

ACTION: Circle all outliers in red.

ACTION: If any RRF < 0.05
1. "R" all non-detects.
2. "J" all positive results.

12.4 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % RSD? (Check at least two values but if errors are found, check more.) ___ [✓] ___

ACTION: Circle Errors in red.

YES NO N/A

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors in data assessments.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction? [✓] ___ ___

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? [✓] ___ ___

ACTION: List below all sample analyses that were not within twelve hours of a continuing calibration analysis for each instrument used.

___

___

___

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/ resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

13.3 Do any semivolatile compounds have a % Difference (% D) between the initial and continuing RRF which exceeds the + 25.0% criteria? ✓ [ ] ___

ACTION: Circle all outliers in red.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated (J). When %D is above 90%, reject all non-detects for that analyte (R) unusable.

	YES	NO	N/A
13.4 Do any semivolatile compounds have a RRF <0.05?		[✓]	

ACTION: Circle all outliers in red.

ACTION: If RRF <0.05, qualify as unusable (R) associated non-detects and "J" associated positive values.

	YES	NO	N/A
13.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more).	✓ manually calc	[ ]	

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

14.0 Internal Standards (Form VIII)

	YES	NO	N/A
14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to + 100%) for each continuing calibration?	[✓]		

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit

(Attach additional sheets if necessary.)

ACTION: 1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects (U values) quantitated with this internal standard.

YES NO N/A

2. Non-detects associated with IS areas > 100% should not be qualified.

3. If the IS area is below the lower limit (<50%), qualify all associated non-detects (U-values) "J". If extremely low area counts are reported (<25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable (R).

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? ✓ __ __

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 <u>Field Duplicates</u>

15.1 Were any field duplicates submitted for BNA analysis? ✓ __ __

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

YES NO N/A

PART C: PESTICIDE/PCB ANALYSIS

1.0 Traffic Reports and Laboratory Narrative

1.1 Are Traffic Report Forms present for all samples? [✓] ___ ___

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? ✓ [ ] ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be qualified as estimated (J). If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded? ✓ [ ] ___

Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

	YES	NO	N/A

ACTION: If technical holding times are exceeded, flag all positive results as estimated (J) and sample quantitation limits (UJ) and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable (R).

3.0 Surrogate Recovery (Form II)

	YES	NO	N/A
3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices?			
a. Low Water	[√]	___	___
b. Soil	[√]	___	___
3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices?			
a. Low Water	[√]	___	___
b. Soil	[√]	___	___

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

	YES	NO	N/A
3.3 Were outliers marked correctly with an asterisk?	[√]	___	___

ACTION: Circle all outliers in red.

	YES	NO	N/A
3.4 Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample or blank? (60-150%)	√	[ ]	___

	YES	NO	N/A

ACTION: No qualification is done if surrogates are diluted out. If recovery for both surrogates is below the contract limit, but above 10%, flag all results for that sample 'J". If recovery is < 10% for either surrogate, qualify positive results 'J" and flag non-detects "R". If recovery is above the contract advisory limits for both surrogates qualify positive values "J".

3.5 Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A? [✓] ___ ___

ACTION: If the RT limits are not met, the analysis may be qualified unusable (R) for that sample on the basis of professional judgement.

3.6 Are there any transcription/calculation errors between raw data and Form II? ___ [✓] ___

ACTION: If large errors exist, call lab for explanation/resubmittal. Make any necessary corrections and document effect in data assessments.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [✓] ___ ___

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices? (1 MS/MSD must be performed for every 20 samples of similar matrix or concentration level)

a. Low Water [✓] ___ ___

b. Soil [✓] ___ ___

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

YES NO N/A

4.3 How many PEST/PCB spike recoveries are outside QC limits?

Water	Soil
0 out of 12	1 out of 12

4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soil
0 out of 6	0 out of 6

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? [✓] ___ ___

5.2 Frequency of Analysis: For the analysis of Pesticide/PCB TCL compounds, has a reagent/ method blank been analyzed for each SDG or every 20 samples of similar matrix or concentration or each extraction batch, whichever is more frequent? [✓] ___ ___

ACTION: If any blank data are missing, take the action specified above in 3.2. If blank data is not available, reject (R) all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence? (minimum contract requirement)

	YES	NO	N/A
ACTION: If any blank data are missing, call lab for explanation/resubmittals. If missing deliverables are unavailable, document the effect in data assessments.			
5.4 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.			
Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?	[✓]	___	___
ACTION: Use professional judgement to determine the effect on the data.			

6.0 <u>Contamination</u>

NOTE: "Water blanks", "distilled water blanks" and "drilling water blanks" are validated like any other sample and are <u>not</u> used to qualify the data. Do not confuse them with the other QC blanks discussed below.

	YES	NO	N/A
6.1 Do any method/instrument/reagent/cleanup blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor and corrected for % moisture when necessary.	___	[✓]	___
6.2 Do any field/rinse blanks have positive PEST/PCB results?	___	[✓]	___

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, or calibration QC problems.

YES NO N/A

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL & > 5x blank value
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as unusable (R).

6.3 Are there field/rinse/equipment blanks associated with every sample? [✓] ___ ___

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 <u>Calibration and GC Performance</u>

7.1 Are the following Gas Chromatograms and Data Systems Printouts for both columns present for all samples, blanks, MS/MSD?

a. peak resolution check [✓] ___ ___

b. performance evaluation mixtures [✓] ___ ___

c. aroclor 1016/1260 [✓] ___ ___

d. aroclors 1221, 1232, 1242, 1248, 1254 [✓] ___ ___

e. toxaphene [✓] ___ ___

f. low points individual mixtures A & B [✓] ___ ___

g. med points individual mixtures A & B [✓] ___ ___

h. high points individual mixtures A & B [✓] ___ ___

	YES	NO	N/A
i. instrument blanks	[✓]	___	___

ACTION: If no, take action specified in 3.2 above.

	YES	NO	N/A
7.2 Are Forms VI - PEST 1-4 present and complete for each column and each analytical sequence?	[✓]	___	___

ACTION: If no, take action specified in 3.2 above.

	YES	NO	N/A
7.3 Are there any transcription/calculation errors between raw data and Forms VI?	___	[✓]	___

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.

	YES	NO	N/A
7.4 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the initial calibration analytical sequence? (For Initial Calibration Standards, Form VI - PEST - 1).	[✓]	___	___

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R).
For aroclors, RT may be outside the RT window, but the aroclor may still be identified from the individual pattern.

	YES	NO	N/A
7.5 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (% RSD must be < 20.0% for all analytes except for the 2 surrogates, which must not exceed 30.0 % RSD). See Form VI PEST - 2.	[ ]	✓	___

	YES	NO	N/A

ACTION: If no, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When RSD >90%, flag all non-detect results for that analyte R (unusable).

7.6 Is the resolution between any two adjacent peaks in the Resolution Check Mixture > 60.0% for both columns? (Form VI-PEST - 4) [✓] ___ ___

ACTION: If no, positive results for compounds that were not adequately resolved should be qualified "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).

7.7 Is Form VII - Pest-1 present and complete for each Performance Evaluation Mixture analyzed during the analytical sequence for both columns? [✓] ___ ___

ACTION: If no, take action as specified in 3.2 above.

7.8 Has the individual % breakdown exceeded 20.0% on either column. ___ [✓] ___

- for 4,4' - DDT? ___ [✓] ___
- for endrin? ___ [✓] ___

Has the combined % breakdown for 4,4'- DDT/ Endrin exceeded 30.0% on either column? (required in all instances) ___ [✓] ___

ACTION: 1. If any % breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the initial calibration sequence (p. D-38/Pest SOW 3/90), qualify all sample analyses in the entire analytical sequence as described below.

YES NO N/A

2. If any % breakdown has failed the QC criteria in a PEM Verification calibration, review data beginning with the samples which followed the last <u>in-control</u> standard until the next acceptable PEM & qualify the data as described below.

a. 4,4'-DDT Breakdown: If 4,4'-DDT breakdown is greater than 20.%:

i. Qualify all positive results for DDT with 'J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable (R).

ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity (NJ).

b. Endrin Breakdown: If endrin breakdown is greater than 20.0%:

i. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable (R).

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity (NJ).

c. Combined Breakdown: If the combined 4,4'-DDT and endrin breakdown is greater than 30.0%:

i. Qualify all positive results for DDT and endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable (R). If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable (R).

YES NO N/A

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity (NJ). Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity (NJ).

7.9 Are the relative percent difference (RPD) values for all PEM analytes <25.0%? (Form VII-PEST-1) [ ] ✓ ___

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

NOTE: If the failing PEM is part of the initial calibration. all samples are potentially affected. If the offending standard is a verification calibration, the associated samples are those which followed the last in-control standard until the next passing standard.

7.10 Have all samples been injected within a 12 hr. period beginning with the injection of an Instrument Blank? [✓] ___ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly.

7.11 Is Form VII - Pest-2 present and complete for each INDA and INDB Verification Calibration analyzed? [✓] ___ ___

ACTION: If no, take action specified in 3.2 above.

7.12 Are there any transcription/calculation errors between raw data and Form VII - Pest-2? ___ [✓] ___

ACTION: If large errors exists, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments. under "Conclusions".

	YES	NO	N/A
7.13 Do all standard retention times for each INDA and INDB Verification Calibration fall within the windows established by the initial calibration sequence?	[ ]	___	___

ACTION: If no, beginning with the samples which followed the last in-control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R).

	YES	NO	N/A
7.14 Are RPD values for all verification calibration standard compounds < 25.0%?	[ ]	___	___

ACTION: If the RPD is >25.0% for the compound being quantitated, qualify all associated positive results "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte which failed the criteria. If the RPD is >90%, flag all non-detects for that analyte R (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

	YES	NO	N/A
8.1 Is Form VIII present and complete for each column and each period of analyses?	[ ]	___	___

ACTION: If no, take action specified in 3.2 above.

	YES	NO	N/A
8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses? (see CLP SOW p. D-39 & D-41/PEST)	[ ]	___	___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

	YES	NO	N/A
9.0 Cleanup Efficiency Verification (Form IX)			
9.1 Is Form IX - Pest-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.)	[✓]	___	___
ACTION: If no, take action specified in 3.2 above. If data suggests that florisil cleanup was not performed, make note in "Contract Problems/Non-Compliance".			
9.2 Are all samples listed on the Pesticide Florisil Cartridge Check Form?	[✓]	___	___
ACTION: If no, take action specified in 3.2 above.			
9.3 If GPC Cleanup was performed, (mandatory for all soil sample extracts) is Form IX - Pest-2 present?	[✓]	___	___
ACTION: If no, take action specified in 3.2 above.			
ACTION: If GPC was not performed when required, make note in" Contract Problems/Non-Compliance" section of data assessment.			
9.4 Are percent recoveries (% R) of the pesticide and surrogate compounds used to check the efficiency of the cleanup procedures within QC limits: 80-120% for florisil cartridge check?	[✓]	___	___
80-110% for GPC calibration?	[✓]	___	___

Qualify only the analyte(s) which fail the recovery criteria as follows:

ACTION: If % R are < 80%, qualify positive results "J" and quantitation limits "UJ". Non-detects should be qualified "R" if zero %R was obtained for pesticide compounds. Use professional judgement to qualify positive results if recoveries are greater than the upper limit.

YES NO N/A

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Make note in Contract Problems/ Non-Compliance section of reviewer narrative.

NOTE: The raw data of the GPC Calibration Check analysis is evaluated for pattern similarity with previously run Aroclor standards.

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected? [✓] __ __

ACTION: If no, take action specified in 3.2 above.

10.2 Are there any transcription/calculation errors between raw data and Forms 6E, 6G, 7E, 7D, 8D, 9A, B, 10A. ✓ [ ] __
corrected 6G

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and note error under "Conclusions".

10.3 Are retention times (RT) of sample compounds within the established RT windows for both analyses? [✓] __ __

Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)? [✓] __ __

Action: Use professional judgement to qualify positive results which were not confirmed by GC/MS. Qualify as unusable (R) all positive results which were not confirmed by second GC column analysis. Also qualify as unusable (R) all positive results not meeting RT window unless associated standard compounds are similarly biased. (see Functional Guidelines) The reviewer should use professional judgement to assign an appropriate quantitation limit.

YES NO N/A

10.4 Is the percent difference (% D) calculated for the positive sample results on the two GC columns < 25.0%? [ ] ✓ ___

ACTION: If the reviewer finds neither column shows interference for the positive hits, the data should be flagged as follows:

% Difference	Qualifier
25-50 %	J
50-90 %	JN
> 90 %	R

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the data assessment.

10.5 Check chromatograms for false negatives, especially the multiple peak compounds toxaphene and PCBs. Were there any false negatives? ___ [✓] ___

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed, qualify the data unusable (R).

11.0 Compound Quantitation and Reported Detection Limits

11.1 Are there any transcription/calculation errors in Form I results? Check at least two positive values. Were any errors found? ___ [✓] ___

NOTE: Single-peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgement to decide whethera much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an approximated quantity (NJ). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

	YES	NO	N/A
11.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, % moisture?	[✓]	___	___

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

ACTION: Quantitation limits affected by large, off-scale peaks should be qualified as unusable (R). If the interference is on-scale, the reviewer can provide an approximated quantitation limit (UJ) for each affected compound.

12.0 Chromatogram Quality

	YES	NO	N/A
12.1 Were baselines stable?	[✓]	___	___
12.2 Were any electropositive displacement (negative peaks) or unusual peaks seen?	___	[✓]	___

ACTION: Address comments under System Performance of data assessment.

	YES	NO	N/A
13.0 Field Duplicates			
13.1 Were any field duplicates submitted for PEST/PCB analysis?	✓		

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

In Reference to Case No(s): 17902

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

REFERENCE # 10
PAGE 69 OF 212

Date ~~of Call~~: 6/11/92 6/24 6/25

Laboratory Name: EEAST

Lab Contact: Renee Cohen

Region: II

Regional Contact: Celia Minch

Call Initiated By: ___ Laboratory ✓ Region

In reference to data for the following sample number(s):
all

Summary of Questions/Issues Discussed:

PA ✓ 1. Instrument ID inconsistent between Form 5A B6619 and raw data and Form 7A B6621 and associated raw data. All associated samples state instrument V1 used. Please resolve discrepancy.

BNA 2. Major discrepancy regarding area reported for IS#2 in B4466. All RRF50 using IS#2 incorrect. Therefore, quantitation of samples potentially affected. (B6B25, 28, 25 MS/MSD), including

Summary of Resolution:

6/26 Forms required to resolve item 2 not received. Also, missing the Form 1 for PIBLK 11, 12, 20 and 21. Please resubmit.

6/26 Lab does not feel Form 1 is required for instrument blanks (PEST) which do not bracket field samples. Therefore there are no Form 1's for PIBLKS which bracket the Florisil and GPC check standards. They said they will contact TPO to resolve issue.

Cecelia N. Minch 6/11/92
Signature Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

surrogate recovery of nitrobenzene and spike compounds. Consequently, Forms 6, 1, 2 and 3 may require correction.

X 3. If RRF50 for B4466 are changed, mean RRFS will also change therefore, resubmit Forms 7B for B4479 and B4499. manually corrected by reviewer

~~4.~~ Resubmit Form 8B with correct IS #2 OK for B4466. not required

PEST 15. Please submit PIBLK 20 / PEM11 and PIBLK 21 / Ind A+B9 which bracket the Florisil check standard. Include all associated CLP Forms. (sequence 3/19 - Inst A5890A)

16. Please submit PIBLK 11 / PEM7 and PIBLK 12 / Ind A+B6 which bracket the GPC calibration check standards. Please be sure to include all associated CLP forms. (sequence 3/19 - Inst A5890A)

Per SOW Exhibit A page 11 item F, all resubmittals required within 7 days.

Thank you

Celia.

APPENDIX A.0

REJECTION SUMMARY FORM
(No. of Compounds/No. of Fractions (Samples)

Type of Review: TOTAL Date: 7/1/92 Case #: 17902

Project: UNIVERSAL Lab Name: EEAST

Reviewer's Initials: CN Number of Samples: 8W/5S

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Lab Contamination method blk Contamination	False +ve False -ve ID	MS, FB, Other	Total # Samples	Total # Rejected/ Total # in all Samples	IS AREAS
Acids (14)	%	%	%	%	%	%	12	0/168	%
B/N (60)	%	%	%	%	1/1	9/9	12	1/600	%
VOA (33)	%	%	%	%	1/1	12/8	15	19/495	18/2
PEST (20)	%	%	%	2/2	3/3	5/5	15	5/300	N/A
PCB (7)	%	%	%	%	%	%	15	0/105	N/A
TCDD (1)				N/A					

"U" qualified due to method blank.

Analytes Estimated Due to Exceeding Review Criteria for:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples	IS AREAS
Acids (14)	%	70/5	%	%	%	%	12	70/168	%
B/N (60)	%	250/5	14/7	%	%	%	12	264/600	%
VOA (33)	48/2	%	10/9	%	%	%	15	131/495	73/3
PEST (20)	%	159/8	%	%	4/3	%	15	163/300	N/A
PCB (7)	%	56/8	%	%	%	%	15	56/105	N/A
TCDD (1)				N/A					

ORGANICS:

SITE: UNIVERSAL
CASE: 17902
LAB: EEAST

TABLE OF HOLDING TIMES AND EXCEEDANCES

	SAMPLE	MATRIX	FRACTION	DATE SAMPLED	DATE LAB RECEIVED	DATE EXTRACTED	DATE ANALYZED	HOLDING TIME	CRITERIA	CCC?	MB?
1	BGB25 +	AQ	VOA	3/9/92	3/11/92		3/12/92	3	S → A		
2	28							3			
3	29 FB							3			
4	30 FB							3			
5	31 DI							3			
6	32	SOIL					3/15/92	6			
7	33							6			
8	34							6			
9	34 RE						3/19/92	10			
10	35						3/15/92	6			
11	36						3/15/92	6			
12	36 RE						3/18/92	9			
13	37 TB	AQ					3/12/92	3			
14	38						3/12/92	3			
15	39 +						3/14/92	5			
16	25 +		BNA			3/13/92	3/31/92	4, 18	S → E → A		
17	28						4/1/92	4, 19			
18	29 FB							4, 19			
19	30 FB							4, 19			
20	31 DI							4, 19			
21	32	SOIL				3/19/92		10, 13			
22	33						4/6/92	10, 18			
23	34						4/6/92	10, 18			
24	35						4/1/92	10, 13			
25	36							10, 13			
26	38	AQ				3/13/92		4, 19			
27	39 +	AQ				3/13/92		4, 19			
28											
29											
30											
31											

+ [illegible]

ORGANICS:

TABLE OF HOLDING TIMES AND EXCEEDANCES

SITE: UNIVERSAL
CASE: 17902
LAB: EEAST

	SAMPLE	MATRIX	FRACTION	DATE SAMPLED	DATE LAB RECEIVED	DATE EXTRACTED	DATE ANALYZED	HOLDING TIME	CRITERIA	CCC?	MB?
1	BGB25 +	AQ	PEST	3/9/92	3/11/92	3/13/92	3/28/92	4, 15	S → E → A		
2	28						3/28/92	4, 15			
3	29 FB						3/29/92	4, 16			
4	30 FB							4, 16			
5	31 DI							4, 16			
6	32	SOIL				3/19/92	4/1/92	10, 13			
7	33							10, 13			
8	33DL							10, 13			
9	34							10, 13			
10	34DL							10, 13			
11	35							10, 13			
12	36							10, 13			
13	36DL						4/2/92	10, 14			
14	38	AQ				3/13/92	3/29/92	4, 16			
15	39 +	AQ				3/13/92	3/29/92	4, 16			
16											
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EBASCO SERVICES INCORPORATED
EBASCO
160 Chubb Avenue, Lyndhurst, NJ 07071-3586, (201) 460-1900

TO: P. Sheridan
TPO Region II

June 11, 1992

FROM: C. Mench

I have been unable to obtain resubmittals in a timely manner from EEAST for cases 17595 and 17677. Those I eventually received were incomplete. The lab contact with whom I have been dealing is Renee Cohen.

I have also just completed my initial review of case 17902. If you could induce the lab to respond quickly, it would be appreciated. Attached are copies of all phone logs associated with these cases.

Thank you.

Celia.

Enseco
A CORNING Company

June 22, 1992

Celia Minch
Ebasco Services Inc.
2890 Woodbridge Avenue
Edison, New Jersey 08837

RECEIVED 1992

Dear Ms. Minch,

Enclosed please find the Enseco East response to your data questions regarding Case 17902, SDG BGB25 which were faxed to Enseco on 6/15/92.

GC/MS Volatile Organics

Instrument files beginning with the letter B are associated with instrument HPV-6. On this day the analyst entered the incorrect data file into the system when setting up the run. This was not detected during the data review process.

GC/MS Semivolatile Organics

This occurred due to a Formaster software error. There was a misidentification of Internal Standard #2 in file B4466. Quantitation of results was not effected, however, the CLP forms were. Enclosed are corrected Forms 6B, 6C, 7B and 7C. A corrected diskette has been sent to the Sample Management Office.

Pesticide/PCB's

Enclosed is the data requested which brackets the Florisil Check and GPC Calibration Check Standards.

If there are any other questions regarding this Case please do not hesitate to call me at (908)469-5800.

Sincerely,

Renee Cohen

Renee G. Cohen
QA Scientist

cc: Patricia Sheridan - Technical Project Officer
Susan McCarthy - Sample Management Office

Enseco Incorporated
2200 Cottontail Lane
Somerset, New Jersey 08875
201/469-5800 Fax: 201/469-7516

Enseco
A Corning Company

SDG NARRATIVE

Enseco East
2200 Cottontail Lane
Somerset, New Jersey 08873

Contract # 68D00163
Lot # A
Case # 17902
SDG # BGB25

CLP Sample Numbers: [redacted] ~~BGB28MSD~~ ~~BGB28~~ ~~BGB29~~ BGB30 [redacted]
~~BGB32MS~~ [redacted] BGB34RE [redacted]
BGB36RE

All analyses were performed according to contract OLM01.0 with modification number 0001 dated 12/90 and modification number 0002 dated 3/91.

Sample Receipt:

The following CLP samples were received March 11, 1992: BGB25, BGB28, BGB29, BGB30, BGB31, BGB32, BGB33, BGB34, BGB35, BGB36, BGB37, BGB38 and BGB39. These samples were received in coolers with temperatures measured at 3.3, 3.6, 2.8 and 2.4 degrees Celsius.

Listed below are Enseco East's sample receipt anomaly notification issues and the Sample Management Office's responses to these issues:

1. Issue - The identification of the Quality Control samples on the Organic Traffic Reports are not clearly indicated. CLP sample BGB32 is identified as a soil spike sample. CLP sample BGB35 is identified as a soil duplicate sample. CLP sample BGB26 is identified as the aqueous spike sample (this sample was not received) and CLP sample BGB25 is identified as the aqueous duplicate sample.

   Response - The following CLP samples should be used by the laboratory as the Quality control samples for Case-17902, SDG-BGB25: BGB32 (soil matrix spike and matrix spike duplicate sample) and BGB25 (aqueous matrix spike and matrix spike duplicate sample).

2. Issue - The following CLP samples were received with one of two volatile sampling containers having headspace observed: BGB34 and BGB36.

   Response - Use the sampling container that does not have headspace for the initial analysis. Use the sampling container with the headspace only if additional sample is required.

3. Issue - The following CLP samples were received with two of two volatile sampling containers having headspace observed: BGB32 and ~~BGB34~~ 3

   Response - Run samples and note anomaly within the SDG narrative.

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A Corning Company

Continue...

4. Issue - BGB31 and BGB37 have a sample description of # 8, representing a description of "Other - to be specified". The specification of the matrix or description of these samples have not been completed on the Organic Traffic Report.

Response - Note issue within the SDG Narrative - no other response has been made available.

5. Issue - No Sample Tag identification numbers were present on the Sample Tags.

Response - Note the lack on Sample Tag identification numbers within the SDG narrative.

GC/MS Volatile Organic Analysis:

CLP samples BGB32, BGB32MS, BGB32MSD were analyzed at 5.0 grams. The internal standard recovery for all three sample analyses failed to meet the QC criteria due to matrix interference.

CLP samples BGB34 and BGB36 were analyzed twice at 5.0 grams. However, both analyses results showed similar low internal standard recovery due to sample matrix effects. The data for both analyses are provided. The re-analyses of these samples are considered billable items.

The recovery of surrogate Toluene d-8 and Bromofluorobenzene exceeded the QC criteria in CLP sample BGB34 which was due to matrix interference as verified by the re-analysis.

CLP samples VBLK02, VBLK03, VBLK04 and VBLK05 analyzed on March 14, 15, 18 and 19, 1992, respectively, were manually written due to mislabelling.

GC/MS Semi-Volatile Organic Analysis:

Reporting limits have been raised for CLP samples BGB25, BGB25MS, BGB25MSD, BGB28, BGB30, BGB31, BGB38, and BGB39 due to limited sample volume available to perform the extract preparation.

CLP samples BGB33 and BGB34 required dilutions due to matrix interference as indicated by the screening analysis.

The semi-volatile organic surrogate recovery raw data information is included within the Organic Sample Data Package.

GC Pesticides/PCBs Organic Analysis:

Because of compounds occurring outside the calibration range, the following CLP samples were analyzed at secondary dilutions: BGB33, BGB34, BGB36.

CLP samples BGB33 and BGB34 contained high levels of Aroclor 1254. This information has been confirmed by GC/MS analyses. The results of these analyses are included within the data package of the Complete Sample Delivery Group File.

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A Corning Company

Continue...

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Mr. J. Zoldak
Enseco East Operations Director
April 13, 1992

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB25
UW-GW01

Lab Name: ENSECO-EAST   Contract: 68D00163

Lab Code: EEAST   Case No.: 17902   SAS No.: ______   SDG No.: BGB25

Matrix: (soil/water) WATER   Lab Sample ID: 20407-0001

Sample wt/vol: 5.0 (g/mL) ML   Lab File ID: B6631

Level: (low/med) LOW   Date Received: 03/11/92

% Moisture: not dec. ____   Date Analyzed: 03/12/92

GC Column: CAP   ID: 0.530 (mm)   Dilution Factor: 1.0

Soil Extract Volume: ________ (uL)   Soil Aliquot Volume: ____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000031

FORM I VOA   Cub 6/3/92   3/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB25
UW-GW01

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ____ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0001

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6631

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

BGB28
UW-GW03

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0002

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6632

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ______(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000045

EPA SAMPLE NO.

BGB28
UW-GW03

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0002

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6632

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000046

EPA SAMPLE NO.

BGB29 FB01

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0003

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6633

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ______(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U J
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000057

 CW 4/3/92 3/90

EPA SAMPLE NO.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BGB29 FB01

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0003

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6633

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000058

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB30 FB02

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0004

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6634

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	4	J
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

FORM I VOA

@ 6/3/92

EPA SAMPLE NO.

BGB30
UW-FB02

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0004

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6634

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000073

EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

BGB31 DL

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0005

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6635

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ____(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	10 ~~2~~	~~J~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10 ~~2~~	~~J~~ U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10 ~~2~~	~~J~~ U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

Cc 6/3/92

000089

EPA SAMPLE NO.

BGB31

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name: ENSECO-EAST Contract: 68D00163

Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

ix: (soil/water) WATER Lab Sample ID: 20407-0005

ole wt/vol: 5.0 (g/mL) ML Lab File ID: B6635

l: (low/med) LOW Date Received: 03/11/92

oisture: not dec. ____ Date Analyzed: 03/12/92

olumn: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Extract Volume: ______ (uL) Soil Aliquot Volume: ______ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

mber TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000090

EPA SAMPLE NO.

BGB32
UW-SS01

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0006

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C7585

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. 22 Date Analyzed: 03/15/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13 ~~6~~	~~J~~ U
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U J
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13 ~~2~~	~~J~~ U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

000105

 6/3/92

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB32
UW-SS01

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0006

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C7585

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. 22 Date Analyzed: 03/15/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______ (uL)

CONCENTRATION UNITS:
Number TICs found: 1 (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CYCLO HYDROCARBON	6.86	13	JN

Cm 6/3/92

000106

EPA SAMPLE NO.

BGB33
UW-SS02

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0007

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C7584

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. 15 Date Analyzed: 03/15/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12 ~~10~~	~~J~~U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	4	J
67-66-3	Chloroform	12 ~~2~~	~~J~~U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	91	
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	10	J
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	72	
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	150	
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	37	
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	190	

000121

C 6/3/92

EPA SAMPLE NO.

BGB33
UW-SS02

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0007

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C7584

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. 15 Date Analyzed: 03/15/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______(uL)

CONCENTRATION UNITS:
Number TICs found: 10 (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	C5H10 ISOMER	4.26	32	J N
2.	HYDROCARBON	4.93	35	J N
3. 110-54-3	~~C6H14 ISOMER~~ HEXANE	5.64	27	~~J~~ R
4.	UNKNOWN	6.03	29	J N
5.	C-8 HYDROCARBON	8.24	26	J
6.	HYDROCARBON	11.19	34	J
7.	UNKNOWN	11.65	26	J
8.	C-3 BENZENE	21.98	95	J
9.	C-3 BENZENE	23.48	110	J
10.	UNKNOWN	26.11	44	J

CW 6/8/92

000122

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BGB34RE
UW-SS03

Lab Name: ENSECO-EAST   Contract: 68D00163

Lab Code: EEAST   Case No.: 17902   SAS No.: ______   SDG No.: BGB25

Matrix: (soil/water) SOIL   Lab Sample ID: 20407-0008RE

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: A0920

Level: (low/med) LOW   Date Received: 03/11/92

% Moisture: not dec. 18   Date Analyzed: 03/19/92

GC Column: CAP   ID: 0.530 (mm)   Dilution Factor: 1.0

Soil Extract Volume: ______ (uL)   Soil Aliquot Volume: ______ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U J
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12 ~~2~~	~~J~~ U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	~~U~~ R
591-78-6	2-Hexanone	12	~~U~~
127-18-4	Tetrachloroethene	12	~~U~~
79-34-5	1,1,2,2-Tetrachloroethane	12	~~U~~
108-88-3	Toluene	12	~~U~~
108-90-7	Chlorobenzene	12	~~U~~
100-41-4	Ethylbenzene	12	~~U~~
100-42-5	Styrene	12	~~U~~
1330-20-7	Xylene (total)	12	~~U~~

FORM I VOA   CMW 6/3/92   3/90

USE THIS DATA

REFERENCE # 10
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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB34RE
UW-SS03

Lab Name: ENSECO-EAST   Contract: 68D00163

Lab Code: EEAST   Case No.: 17902   SAS No.: ______   SDG No.: BGB25

Matrix: (soil/water) SOIL   Lab Sample ID: 20407-0008RE

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: A0920

Level: (low/med) LOW   Date Received: 03/11/92

% Moisture: not dec. 18   Date Analyzed: 03/19/92

GC Column: CAP   ID: 0.530 (mm)   Dilution Factor: 1.0

Soil Extract Volume: ______ (uL)   Soil Aliquot Volume: ______ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

CW 6/1/92

FORM I VOA-TIC

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB35
UW-SS04

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0009

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C7582

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. 20 Date Analyzed: 03/15/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12 ~~2~~	~~J~~ U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

000191

@ 6/3/92

EPA SAMPLE NO.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BGB35
UW-SS04

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0009

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C7582

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. 20 Date Analyzed: 03/15/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000193

USE THIS DATA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BGB36RE
Dup UW-SS04

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0010RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A0898

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. 22 Date Analyzed: 03/18/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	UJ
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	27	U
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	UJ
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	12	~~J~~
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

000221

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA SAMPLE NO.~~

BGB36RE
Dup UW-5504

Lab Name: ENSECO-EAST   Contract: 68D00163

Lab Code: EEAST   Case No.: 17902   SAS No.: ______   SDG No.: BGB25

Matrix: (soil/water) SOIL   Lab Sample ID: 20407-0010RE

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: A0898

Level: (low/med) LOW   Date Received: 03/11/92

% Moisture: not dec. 22   Date Analyzed: 03/18/92

GC Column: CAP   ID: 0.530 (mm)   Dilution Factor: 1.0

Soil Extract Volume: ________ (uL)   Soil Aliquot Volume: _____(uL)

Number TICs found: 1   CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	27.50	23	J N

Cw 6/3/92

000225

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB37 TB

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0011

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6636

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000241

 cw 6/3/92 3/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB37 TB

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0011

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6636

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000241

EPA SAMPLE NO.

BGB38
uw-GW04

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0012

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6637

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U J
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000256

 Cw 6/3/92 3/90

EPA SAMPLE NO.

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BGB38
uw-GW04

Name: ENSECO-EAST Contract: 68D00163

Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

ix: (soil/water) WATER Lab Sample ID: 20407-0012

le wt/vol: 5.0 (g/mL) ML Lab File ID: B6637

l: (low/med) LOW Date Received: 03/11/92

isture: not dec. ____ Date Analyzed: 03/12/92

olumn: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Extract Volume: ______ (uL) Soil Aliquot Volume: ______ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

ber TICs found: 0

AS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000257

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB39
uw-Gw01 Dup

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0013

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V7508

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/14/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ______(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB39
MW-GW01 Dup

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0013

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V7508

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: not dec. ____ Date Analyzed: 03/14/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC 3/90

EPA SAMPLE NO.

BGB25
UWGW01

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0001

Sample wt/vol: 900 (g/mL) ML Lab File ID: B4473

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)Ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-Di-n-Propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)Methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-Methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	28	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	28	U
131-11-3	Dimethyl Phthalate	11	UJ
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	28	U
83-32-9	Acenaphthene	11	U

000471

@ 7/1/92

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB25
uw-GW01

Lab Name: ENSECO-EAST   Contract: 68D00163

Lab Code: EEAST   Case No.: 17902   SAS No.: ______   SDG No.: BGB25

Matrix: (soil/water) WATER   Lab Sample ID: 20407-0001

Sample wt/vol: 900 (g/mL) ML   Lab File ID: B4473

Level: (low/med) LOW   Date Received: 03/11/92

% Moisture: ______ decanted: (Y/N) ___   Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL)   Date Analyzed: 03/31/92

Injection Volume: 2.0(uL)   Dilution Factor: 1.0

GPC Cleanup: (Y/N) N   pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	28	U
100-02-7	4-Nitrophenol	28	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
86-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	28	U
534-52-1	4,6-Dinitro-2-Methylphenol	28	U
86-30-6	N-Nitrosodiphenylamine (1)	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
87-86-5	Pentachlorophenol	28	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-Butylphthalate	11	U
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	11	U
56-55-3	Benzo(a)Anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~2~~ 11	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	11	U
205-99-2	Benzo(b)Fluoranthene	11	U
207-08-9	Benzo(k)Fluoranthene	11	UJ
50-32-8	Benzo(a)Pyrene	11	U
193-39-5	Indeno(1,2,3-cd)Pyrene	11	U
53-70-3	Dibenz(a,h)Anthracene	11	U
191-24-2	Benzo(g,h,i)Perylene	11	U

000472

(1) - Cannot be separated from Diphenylamine

cw 7/1/92

EPA SAMPLE NO.

BGB25
UW-GW01

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0001

Sample wt/vol: 900 (g/mL) ML Lab File ID: B4473

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: ____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.20	4	J N
2.	UNKNOWN	6.27	6	~~BJ~~ N
3.	UNKNOWN	6.97	6	~~BJ~~ R
4.	UNKNOWN	29.49	6	~~J~~ R

CW 7/1/92

000473

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB28
UW-GW03

Lab Name: ENSECO-EAST   Contract: 68D00163

Lab Code: EEAST   Case No.: 17902   SAS No.: ______   SDG No.: BGB25

Matrix: (soil/water) WATER   Lab Sample ID: 20407-0002

Sample wt/vol: 840 (g/mL) ML   Lab File ID: B4476

Level: (low/med) LOW   Date Received: 03/11/92

% Moisture: ____ decanted: (Y/N) ___   Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL)   Date Analyzed: 04/01/92

Injection Volume: 2.0(uL)   Dilution Factor: 1.0

GPC Cleanup: (Y/N) N   pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	12	U
111-44-4	bis(2-Chloroethyl)Ether	12	U
95-57-8	2-Chlorophenol	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	12	U
95-50-1	1,2-Dichlorobenzene	12	U
95-48-7	2-Methylphenol	12	U
108-60-1	2,2'-oxybis(1-Chloropropane)	12	U
106-44-5	4-Methylphenol	12	U
621-64-7	N-Nitroso-Di-n-Propylamine	12	U
67-72-1	Hexachloroethane	12	U
98-95-3	Nitrobenzene	12	U
78-59-1	Isophorone	12	U
88-75-5	2-Nitrophenol	12	U
105-67-9	2,4-Dimethylphenol	12	U
111-91-1	bis(2-Chloroethoxy)Methane	12	U
120-83-2	2,4-Dichlorophenol	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U
91-20-3	Naphthalene	12	U
106-47-8	4-Chloroaniline	12	U
87-68-3	Hexachlorobutadiene	12	U
59-50-7	4-Chloro-3-Methylphenol	12	U
91-57-6	2-Methylnaphthalene	12	U
77-47-4	Hexachlorocyclopentadiene	12	U
88-06-2	2,4,6-Trichlorophenol	12	U
95-95-4	2,4,5-Trichlorophenol	30	U
91-58-7	2-Chloronaphthalene	12	U
88-74-4	2-Nitroaniline	30	U
131-11-3	Dimethyl Phthalate	12	UJ
208-96-8	Acenaphthylene	12	U
606-20-2	2,6-Dinitrotoluene	12	U
99-09-2	3-Nitroaniline	30	U
83-32-9	Acenaphthene	12	U

000507

CW 7/1/92

EPA SAMPLE NO.

BGB28
UW-GW03

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0002

Sample wt/vol: 840 (g/mL) ML Lab File ID: B4476

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	30	U
100-02-7	4-Nitrophenol	30	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	12	U
84-66-2	Diethylphthalate	12	U
7005-72-3	4-Chlorophenyl-phenylether	12	U
86-73-7	Fluorene	12	U
100-01-6	4-Nitroaniline	30	U
534-52-1	4,6-Dinitro-2-Methylphenol	30	U
86-30-6	N-Nitrosodiphenylamine (1)	12	U
101-55-3	4-Bromophenyl-phenylether	12	U
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	30	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	12	U
86-74-8	Carbazole	12	U
84-74-2	Di-n-Butylphthalate	12	U
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	12	U
85-68-7	Butylbenzylphthalate	12	U
91-94-1	3,3'-Dichlorobenzidine	12	U
56-55-3	Benzo(a)Anthracene	12	U
218-01-9	Chrysene	12	U
117-81-7	bis(2-Ethylhexyl)Phthalate	12	U
117-84-0	Di-n-Octyl Phthalate	12	U
205-99-2	Benzo(b)Fluoranthene	12	U
207-08-9	Benzo(k)Fluoranthene	12	UJ
50-32-8	Benzo(a)Pyrene	12	U
193-39-5	Indeno(1,2,3-cd)Pyrene	12	U
53-70-3	Dibenz(a,h)Anthracene	12	U
191-24-2	Benzo(g,h,i)Perylene	12	U

000508

(1) - Cannot be separated from Diphenylamine

Em 7/1/92

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BGB28
UW-GW03

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0002

Sample wt/vol: 840 (g/mL) ML Lab File ID: B4476

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: ______ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 16

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.21	6	J N
2.	UNKNOWN	6.78	14	~~BJ~~ R
3.	UNKNOWN	6.96	4	~~BJ~~ R
4. 65850	BENZOIC ACID	11.96	4	J N
5.	UNKNOWN	12.96	2	J
6.	UNKNOWN	14.01	5	J
7.	UNKNOWN	14.60	2	J
8.	UNKNOWN	14.72	2	J
9.	UNKNOWN	14.86	4	J
10.	ETHYL NAPHTHALENE ISOMER	16.13	4	J
11.	DIMETHYL NAPHTHALENE ISOMER	16.86	4	J
12.	C3 NAPHTHALENE ISOMER	18.61	2	J
13.	UNKNOWN	20.28	2	J
14. 80397	BENZENESULFONAMIDE,N-ETHYL-4	21.21	4	J
15.	UNKNOWN	24.58	6	J
16.	UNKNOWN	29.51	4	J

@ 7/1/92 000509

EPA SAMPLE NO.

BGB29 FB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

b Name: ENSECO-EAST Contract: 68D00163

b Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

trix: (soil/water) WATER Lab Sample ID: 20407-0003

mple wt/vol: 1000 (g/mL) ML Lab File ID: B4480

vel: (low/med) LOW Date Received: 03/11/92

Moisture: ______ decanted: (Y/N) ___ Date Extracted: 03/13/92

ncentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

jection Volume: 2.0 (uL) Dilution Factor: 1.0

C Cleanup: (Y/N) N pH: 5.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethyl Phthalate	10	UJ
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

000578

CW 7/1/92

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB29 FB

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: B4480

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	8	J
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	UJ
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

000579

(1) - Cannot be separated from Diphenylamine

CW 7/1/92

EPA SAMPLE NO.

BGB29 FB

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: B4480

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.29	4	J N
2.	UNKNOWN	6.78	5	BJ
3.	UNKNOWN	6.97	5	BJ
4.	UNKNOWN	9.24	2	J
5.	UNKNOWN	29.49	5	J

Cw 7/1/92

000580

REFERENCE # ___
PAGE 114 OF 212

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB30 FB

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0004

Sample wt/vol: 950 (g/mL) ML Lab File ID: B4481

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	11 ~~10~~	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	11 ~~10~~	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethyl Phthalate	11 ~~10~~	U J
208-96-8	Acenaphthylene	~~10~~	U
606-20-2	2,6-Dinitrotoluene	~~10~~	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	11 ~~10~~	U

000615

FORM I SV-1 3/90

Cu 6/8/92

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB30 FB

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0004

Sample wt/vol: 950 (g/mL) ML Lab File ID: B4481

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	26	U
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	11 10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-Methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	11 10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	11 10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	9	J
117-84-0	Di-n-Octyl Phthalate	11 10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U J
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

000616

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB30 FB

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0004

Sample wt/vol: 950 (g/mL) ML Lab File ID: B4481

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.29	4	J N
2.	UNKNOWN	6.78	3	BJ
3.	UNKNOWN	6.97	5	BJ
4.	UNKNOWN	9.67	2	J
5.	UNKNOWN	29.49	6	J
6.	HYDROCARBON	29.65	2	J

Cw 7/1/92

000617

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BGB31 DI

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0005

Sample wt/vol: 950 (g/mL) ML Lab File ID: B4482

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	11 ~~10~~	U
111-44-4	bis(2-Chloroethyl)Ether	~~10~~	U
95-57-8	2-Chlorophenol	~~10~~	U
541-73-1	1,3-Dichlorobenzene	~~10~~	U
106-46-7	1,4-Dichlorobenzene	~~10~~	U
95-50-1	1,2-Dichlorobenzene	~~10~~	U
95-48-7	2-Methylphenol	~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)	~~10~~	U
106-44-5	4-Methylphenol	~~10~~	U
621-64-7	N-Nitroso-Di-n-Propylamine	~~10~~	U
67-72-1	Hexachloroethane	~~10~~	U
98-95-3	Nitrobenzene	~~10~~	U
78-59-1	Isophorone	~~10~~	U
88-75-5	2-Nitrophenol	~~10~~	U
105-67-9	2,4-Dimethylphenol	~~10~~	U
111-91-1	bis(2-Chloroethoxy)Methane	~~10~~	U
120-83-2	2,4-Dichlorophenol	~~10~~	U
120-82-1	1,2,4-Trichlorobenzene	~~10~~	U
91-20-3	Naphthalene	~~10~~	U
106-47-8	4-Chloroaniline	~~10~~	U
87-68-3	Hexachlorobutadiene	~~10~~	U
59-50-7	4-Chloro-3-Methylphenol	~~10~~	U
91-57-6	2-Methylnaphthalene	~~10~~	U
77-47-4	Hexachlorocyclopentadiene	~~10~~	U
88-06-2	2,4,6-Trichlorophenol	~~10~~	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	11 ~~10~~	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethyl Phthalate	11 ~~10~~	UJ
208-96-8	Acenaphthylene	~~10~~	U
606-20-2	2,6-Dinitrotoluene	~~10~~	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	11 ~~10~~	U

000655

FORM I SV-1 [illegible] 3/90

EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BGB31 DI

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0005

Sample wt/vol: 950 (g/mL) ML Lab File ID: B4482

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: ____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION (UG/L)	Q
51-28-5	2,4-Dinitrophenol	26	U
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	11 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	~~10~~	U
84-66-2	Diethylphthalate	~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	~~10~~	U
86-73-7	Fluorene	~~10~~	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-Methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	11 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	~~10~~	U
118-74-1	Hexachlorobenzene	~~10~~	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	11 ~~10~~	U
120-12-7	Anthracene	~~10~~	U
86-74-8	Carbazole	~~10~~	U
84-74-2	Di-n-Butylphthalate	~~10~~	U
206-44-0	Fluoranthene	~~10~~	U
129-00-0	Pyrene	~~10~~	U
85-68-7	Butylbenzylphthalate	~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	~~10~~	U
56-55-3	Benzo(a)Anthracene	~~10~~	U
218-01-9	Chrysene	~~10~~	U
117-81-7	bis(2-Ethylhexyl)Phthalate	68	U
117-84-0	Di-n-Octyl Phthalate	11 ~~10~~	U
205-99-2	Benzo(b)Fluoranthene	~~10~~	U
207-08-9	Benzo(k)Fluoranthene	~~10~~	UJ
50-32-8	Benzo(a)Pyrene	~~10~~	U
193-39-5	Indeno(1,2,3-cd)Pyrene	~~10~~	U
53-70-3	Dibenz(a,h)Anthracene	~~10~~	U
191-24-2	Benzo(g,h,i)Perylene	~~10~~	U

00065

(1) - Cannot be separated from Diphenylamine

@ 6/8/92

EPA SAMPLE NO.

BGB31 DI

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0005

Sample wt/vol: 950 (g/mL) ML Lab File ID: B4482

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0

CONCENTRATION UNITS:
Number TICs found: 4 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.29	3	~~J~~ R
2.	UNKNOWN	6.78	3	~~BJ~~
3.	UNKNOWN	6.98	3	~~BJ~~
4.	UNKNOWN	14.85	3	~~BJ~~

Cam 7/1/92

000657

EPA SAMPLE NO.

BGB32
UW-SS01

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0006

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B4486

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 22 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	280	J
111-44-4	bis(2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-Di-n-Propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)Methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethyl Phthalate	420	U
208-96-8	Acenaphthylene	67	J
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	420	U

FORM I SV-1 3/90

C 7/1/92

EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BGB32
UW-SS01

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0006

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B4486

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 22 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U J
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-Methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	250	J
120-12-7	Anthracene	63	J
86-74-8	Carbazole	420	U
84-74-2	Di-n-Butylphthalate	420	U
206-44-0	Fluoranthene	440	
129-00-0	Pyrene	530	
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)Anthracene	230	J
218-01-9	Chrysene	300	J
117-81-7	bis(2-Ethylhexyl)Phthalate	420 ~~130~~	JU
117-84-0	Di-n-Octyl Phthalate	420	U
205-99-2	Benzo(b)Fluoranthene	510	
207-08-9	Benzo(k)Fluoranthene	150	J
50-32-8	Benzo(a)Pyrene	260	J
193-39-5	Indeno(1,2,3-cd)Pyrene	120	J
53-70-3	Dibenz(a,h)Anthracene	420	U
191-24-2	Benzo(g,h,i)Perylene	64	J

(1) - Cannot be separated from Diphenylamine

9/1/92

000093

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB32
UW-SS01

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0006

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B4486

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 22 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.24	170	~~BJ~~ R
2.	UNKNOWN	8.31	250	J N
3.	UNKNOWN	8.73	800	J N
4.	UNKNOWN	9.20	210	~~BJ~~ R
5. 120809	1,2-BENZENEDIOL	12.45	630	J N
6.	UNKNOWN	12.49	130	J
7.	UNKNOWN	13.79	380	J
8.	UNKNOWN	17.77	170	J
9.	UNKNOWN	24.01	130	J
10.	UNKNOWN	24.27	130	J
11.	UNKNOWN	24.57	340	J
12.	UNKNOWN	24.69	85	J
13.	UNKNOWN	29.52	340	J
14.	UNKNOWN	29.66	130	J
15.	UNKNOWN	30.64	250	J
16.	UNKNOWN	32.76	300	J
17.	UNKNOWN	34.14	130	J
18.	UNKNOWN	34.84	170	J
19.	HYDROCARBON	36.87	380	J
20.	UNKNOWN	38.79	800	J

Cw 7/1/92

EPA SAMPLE NO.

BGB33
UW-SS02

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: G6212

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 15 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/06/92

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	UG/KG	Q
108-95-2	Phenol	3900	U J
111-44-4	bis(2-Chloroethyl)Ether	3900	U
95-57-8	2-Chlorophenol	3900	U
541-73-1	1,3-Dichlorobenzene	3900	U
106-46-7	1,4-Dichlorobenzene	3900	U
95-50-1	1,2-Dichlorobenzene	3900	U
95-48-7	2-Methylphenol	3900	U
108-60-1	2,2'-oxybis(1-Chloropropane)	3900	U
106-44-5	4-Methylphenol	3900	U
621-64-7	N-Nitroso-Di-n-Propylamine	3900	U
67-72-1	Hexachloroethane	3900	U
98-95-3	Nitrobenzene	3900	U
78-59-1	Isophorone	3900	U
88-75-5	2-Nitrophenol	3900	U
105-67-9	2,4-Dimethylphenol	3900	U
111-91-1	bis(2-Chloroethoxy)Methane	3900	U
120-83-2	2,4-Dichlorophenol	3900	U
120-82-1	1,2,4-Trichlorobenzene	3900	U
91-20-3	Naphthalene	3900	U
106-47-8	4-Chloroaniline	3900	U
87-68-3	Hexachlorobutadiene	3900	U
59-50-7	4-Chloro-3-Methylphenol	3900	U
91-57-6	2-Methylnaphthalene	560	~~J~~
77-47-4	Hexachlorocyclopentadiene	3900	U
88-06-2	2,4,6-Trichlorophenol	3900	U
95-95-4	2,4,5-Trichlorophenol	9400	U
91-58-7	2-Chloronaphthalene	3900	U
88-74-4	2-Nitroaniline	9400	U
131-11-3	Dimethyl Phthalate	3900	U
208-96-8	Acenaphthylene	3900	U
606-20-2	2,6-Dinitrotoluene	3900	U
99-09-2	3-Nitroaniline	9400	U
83-32-9	Acenaphthene	3900	U

000771

@ 7/1/92

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB33
UW-SS02

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: G6212

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 15 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/06/92

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	9400	U J
100-02-7	4-Nitrophenol	9400	U
132-64-9	Dibenzofuran	3900	U
121-14-2	2,4-Dinitrotoluene	3900	U
84-66-2	Diethylphthalate	3900	U
7005-72-3	4-Chlorophenyl-phenylether	3900	U
86-73-7	Fluorene	3900	U
100-01-6	4-Nitroaniline	9400	U
534-52-1	4,6-Dinitro-2-Methylphenol	9400	U
86-30-6	N-Nitrosodiphenylamine (1)	3900	U
101-55-3	4-Bromophenyl-phenylether	3900	U
118-74-1	Hexachlorobenzene	3900	U
87-86-5	Pentachlorophenol	9400	U
85-01-8	Phenanthrene	920	J
120-12-7	Anthracene	3900	U
86-74-8	Carbazole	3900	U
84-74-2	Di-n-Butylphthalate	3900	U
206-44-0	Fluoranthene	1300	J
129-00-0	Pyrene	1300	J
85-68-7	Butylbenzylphthalate	630	J
91-94-1	3,3'-Dichlorobenzidine	3900	U
56-55-3	Benzo(a)Anthracene	730	J
218-01-9	Chrysene	810	J
117-81-7	bis(2-Ethylhexyl)Phthalate	3900 ~~1700~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	3900	U
205-99-2	Benzo(b)Fluoranthene	3900	U
207-08-9	Benzo(k)Fluoranthene	420	J
50-32-8	Benzo(a)Pyrene	620	J
193-39-5	Indeno(1,2,3-cd)Pyrene	450	J
53-70-3	Dibenz(a,h)Anthracene	3900	U
191-24-2	Benzo(g,h,i)Perylene	3900	U

(1) - Cannot be separated from Diphenylamine

@ 7/1/92

000775

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB33
UW-SS02

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: G6212

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 15 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/06/92

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.0

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	C10 H16 ISOMER	7.35	4300	J N
2.	C10 H16 ISOMER	8.41	2400	J
3.	C3 BENZENE ISOMER	8.81	1200	J
4.	C4 BENZENE ISOMER	10.24	1200	J
5.	UNKNOWN	13.18	780	J
6. 112505	ETHANOL, 2-[2-(2-ETHOXYETHOX	14.70	780	J
7.	HYDROCARBON	16.90	780	J
8. 143226	ETHANOL, 2-[2-(2-BUTOXYETHOX	18.01	6300	J
9.	HYDROCARBON	18.58	780	J
10.	HYDROCARBON	20.17	780	J
11.	HYDROCARBON	21.68	1200	J
12.	UNKNOWN	22.27	4300	J
13.	HYDROCARBON	24.46	1200	J
14.	HYDROCARBON	25.77	1600	J
15.	UNKNOWN	25.97	1600	J
16.	UNKNOWN	26.53	1200	J
17.	HYDROCARBON	27.01	1600	J

CW 7/1/92

000776

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB34
UW-SS03

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0008

Sample wt/vol: 30.2 (g/mL) G Lab File ID: G6213

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 18 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/06/92

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	UG/KG	Q
108-95-2	Phenol	4000	U J
111-44-4	bis(2-Chloroethyl)Ether	4000	U
95-57-8	2-Chlorophenol	4000	U
541-73-1	1,3-Dichlorobenzene	4000	U
106-46-7	1,4-Dichlorobenzene	4000	U
95-50-1	1,2-Dichlorobenzene	4000	U
95-48-7	2-Methylphenol	4000	U
108-60-1	2,2'-oxybis(1-Chloropropane)	4000	U
106-44-5	4-Methylphenol	4000	U
621-64-7	N-Nitroso-Di-n-Propylamine	4000	U
67-72-1	Hexachloroethane	4000	U
98-95-3	Nitrobenzene	4000	U
78-59-1	Isophorone	4000	U
88-75-5	2-Nitrophenol	4000	U
105-67-9	2,4-Dimethylphenol	4000	U
111-91-1	bis(2-Chloroethoxy)Methane	4000	U
120-83-2	2,4-Dichlorophenol	4000	U
120-82-1	1,2,4-Trichlorobenzene	4000	U
91-20-3	Naphthalene	4000	U
106-47-8	4-Chloroaniline	4000	U
87-68-3	Hexachlorobutadiene	4000	U
59-50-7	4-Chloro-3-Methylphenol	4000	U
91-57-6	2-Methylnaphthalene	4000	U
77-47-4	Hexachlorocyclopentadiene	4000	U
88-06-2	2,4,6-Trichlorophenol	4000	U
95-95-4	2,4,5-Trichlorophenol	9700	U
91-58-7	2-Chloronaphthalene	4000	U
88-74-4	2-Nitroaniline	9700	U
131-11-3	Dimethyl Phthalate	4000	U
208-96-8	Acenaphthylene	4000	U
606-20-2	2,6-Dinitrotoluene	4000	U
99-09-2	3-Nitroaniline	9700	U
83-32-9	Acenaphthene	4000	U

EA 4/15

EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BGB34
uw-SS03

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0008

Sample wt/vol: 30.2 (g/mL) G Lab File ID: G6213

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 18 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/06/92

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	9700	U
100-02-7	4-Nitrophenol	9700	U
132-64-9	Dibenzofuran	4000	U
121-14-2	2,4-Dinitrotoluene	4000	U
84-66-2	Diethylphthalate	4000	U
7005-72-3	4-Chlorophenyl-phenylether	4000	U
86-73-7	Fluorene	4000	U
100-01-6	4-Nitroaniline	9700	U
534-52-1	4,6-Dinitro-2-Methylphenol	9700	U
86-30-6	N-Nitrosodiphenylamine (1)	4000	U
101-55-3	4-Bromophenyl-phenylether	4000	U
118-74-1	Hexachlorobenzene	4000	U
87-86-5	Pentachlorophenol	9700	U
85-01-8	Phenanthrene	4000	U
120-12-7	Anthracene	4000	U
86-74-8	Carbazole	4000	U
84-74-2	Di-n-Butylphthalate	2700	J
206-44-0	Fluoranthene	670	J
129-00-0	Pyrene	610	J
85-68-7	Butylbenzylphthalate	4000	U
91-94-1	3,3'-Dichlorobenzidine	4000	U
56-55-3	Benzo(a)Anthracene	4000	U
218-01-9	Chrysene	480	J
117-81-7	bis(2-Ethylhexyl)Phthalate	4000 ~~570~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	4000	U
205-99-2	Benzo(b)Fluoranthene	4000	U
207-08-9	Benzo(k)Fluoranthene	4000	U
50-32-8	Benzo(a)Pyrene	4000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	4000	U
53-70-3	Dibenz(a,h)Anthracene	4000	U
191-24-2	Benzo(g,h,i)Perylene	4000	U

(1) - Cannot be separated from Diphenylamine

~~000756~~ EH 4/15
@7/1/92 000843

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB34
UW-5503

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0008

Sample wt/vol: 30.2 (g/mL) G Lab File ID: G6213

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 18 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/06/92

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.1

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1,1'-BIPHENYL, TETRACHLORO-	25.11	4000	J N
2.	1,1'-BIPHENYL, TETRACHLORO-	25.59	2000	J
3.	UNKNOWN	25.79	3600	J
4.	UNKNOWN	26.39	2000	J
5.	UNKNOWN	26.66	2400	J
6.	UNKNOWN	26.88	3200	J
7.	1,1'-BIPHENYL, PENTACHLORO-I	27.14	1600	J
8.	1,1'-BIPHENYL, PENTACHLORO-I	27.19	1600	J
9.	1,1'-BIPHENYL, PENTACHLORO-I	27.31	6900	J
10.	1,1'-BIPHENYL, PENTACHLORO-I	27.78	2800	J
11.	1,1'-BIPHENYL, PENTACHLORO-I	27.95	3600	J
12.	1,1'-BIPHENYL, PENTACHLORO-I	28.03	1600	J
13.	~~UNKNOWN~~ 1,1'-BIPHENYL, HEXACHLORO-	28.42	1600	J
14.	1,1'-BIPHENYL, HEXACHLORO-IS	28.73	4000	J
15.	1,1'-BIPHENYL, PENTACHLORO-I	28.87	6900	J
16.	1,1'-BIPHENYL, HEXACHLORO-IS	29.38	7300	J
17.	1,1'-BIPHENYL, PENTACHLORO-I	29.46	3200	J
18.	UNKNOWN	29.65	2000	J
19.	1,1'-BIPHENYL, HEXACHLORO-IS	30.01	7300	J
20.	1,1'-BIPHENYL, HEXACHLORO-IS	30.62	1600	J

@ 7/1/92

~~000757~~ SB 4/15

EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BGB35
UW-SS04

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0009

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B4502

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 20 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	410	U J
111-44-4	bis(2-Chloroethyl)Ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
95-48-7	2-Methylphenol	410	U
108-60-1	2,2'-oxybis(1-Chloropropane)	410	U
106-44-5	4-Methylphenol	410	U
621-64-7	N-Nitroso-Di-n-Propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
111-91-1	bis(2-Chloroethoxy)Methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	410	U
106-47-8	4-Chloroaniline	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-Methylphenol	410	U
91-57-6	2-Methylnaphthalene	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
95-95-4	2,4,5-Trichlorophenol	990	U
91-58-7	2-Chloronaphthalene	410	U
88-74-4	2-Nitroaniline	990	U
131-11-3	Dimethyl Phthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	410	U
99-09-2	3-Nitroaniline	990	U
83-32-9	Acenaphthene	410	U

FORM I SV-1

C 7/1/92 EK 4/15 ~~000833~~ 000820

EPA SAMPLE NO.

BGB35
UW - SS04

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0009

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B4502

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 20 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	990	U J
100-02-7	4-Nitrophenol	990	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U
86-73-7	Fluorene	410	U
100-01-6	4-Nitroaniline	990	U
534-52-1	4,6-Dinitro-2-Methylphenol	990	U
86-30-6	N-Nitrosodiphenylamine (1)	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	990	U
85-01-8	Phenanthrene	400	J
120-12-7	Anthracene	100	J
86-74-8	Carbazole	61	J
84-74-2	Di-n-Butylphthalate	81	J
206-44-0	Fluoranthene	790	
129-00-0	Pyrene	900	
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)Anthracene	600	
218-01-9	Chrysene	490	
117-81-7	bis(2-Ethylhexyl)Phthalate	410 ~~78~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	410	U
205-99-2	Benzo(b)Fluoranthene	920	
207-08-9	Benzo(k)Fluoranthene	260	J
50-32-8	Benzo(a)Pyrene	490	
193-39-5	Indeno(1,2,3-cd)Pyrene	240	J
53-70-3	Dibenz(a,h)Anthracene	53	J
191-24-2	Benzo(g,h,i)Perylene	140	J

(1) - Cannot be separated from Diphenylamine

EH 4-15 ~~000831~~ 000927

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BGB35
UW-SS04

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0009

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B4502

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 20 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

Number TICs found: 19

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.30	160	~~BJ~~ R
2.	UNKNOWN	9.23	210	~~BJ~~ R
3.	HYDROCARBON	19.44	82	J N
4.	HYDROCARBON + C15 H12 ISOMER	23.72	120	J
5.	HYDROCARBON	24.64	540	J
6.	HYDROCARBON	26.26	160	J
7.	UNKNOWN	27.97	500	J
8.	HYDROCARBON	28.59	820	J
9.	UNKNOWN	29.56	1600	BJ
10.	HYDROCARBON	29.71	1400	J
11.	UNKNOWN	30.02	250	J
12.	HYDROCARBON	30.76	1200	J
13.	SUBSTITUTED 1,2-BENZENEDICAR	30.89	580	J
14.	HYDROCARBON	31.79	1500	J
15.	HYDROCARBON	32.82	950	J
16.	HYDROCARBON	33.81	820	J
17.	HYDROCARBON	35.83	620	J
18.	HYDROCARBON	36.95	910	J
19.	HYDROCARBON	38.16	9100	J

@ 7/1/92

000928

ed 4/15

EPA SAMPLE NO.

BGB36
Dup UW-SS04

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST   Contract: 68D00163

Lab Code: EEAST   Case No.: 17902   SAS No.: ______   SDG No.: BGB25

Matrix: (soil/water) SOIL   Lab Sample ID: 20407-0010

Sample wt/vol: 30.2 (g/mL) G   Lab File ID: B4503

Level: (low/med) LOW   Date Received: 03/11/92

% Moisture: 22   decanted: (Y/N) N   Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL)   Date Analyzed: 04/01/92

Injection Volume: 2.0(uL)   Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y   pH: 7.7

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
108-95-2	Phenol	420	U J
111-44-4	bis(2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-Di-n-Propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)Methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	65	J
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethyl Phthalate	420	U
208-96-8	Acenaphthylene	180	J
606-20-2	2,6-Dinitrotoluene	420 ~~270~~	~~J~~ U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	48	J

ED 4/15

~~000911~~

FORM I SV-1   3/90

Eu 1/1/92

EPA SAMPLE NO.

BGB36

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0010

Sample wt/vol: 30.2 (g/mL) G Lab File ID: B4503

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 22 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U J
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	45	J
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	120	J
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-Methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	1700	
120-12-7	Anthracene	420	J
86-74-8	Carbazole	110	J
84-74-2	Di-n-Butylphthalate	64	J
206-44-0	Fluoranthene	2300	
129-00-0	Pyrene	2300	
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)Anthracene	1500	
218-01-9	Chrysene	1000	
117-81-7	bis(2-Ethylhexyl)Phthalate	420 ~~130~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	420	U
205-99-2	Benzo(b)Fluoranthene	1800	
207-08-9	Benzo(k)Fluoranthene	490	
50-32-8	Benzo(a)Pyrene	980	
193-39-5	Indeno(1,2,3-cd)Pyrene	380	J
53-70-3	Dibenz(a,h)Anthracene	110	J
191-24-2	Benzo(g,h,i)Perylene	230	J

EH 4/15

(1) - Cannot be separated from Diphenylamine

~~000912~~

@ 7.1.92

001005

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
BGB36
Dup uw 5504

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-0010

Sample wt/vol: 30.2 (g/mL) G Lab File ID: B4503

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 22 decanted: (Y/N) N Date Extracted: 03/19/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	HYDROCARBON	17.88	130	J N
2.	HYDROCARBON	19.46	210	J
3.	HYDROCARBON	20.95	210	J
4.	HYDROCARBON	23.72	300	J
5.	C15 H12 ISOMER	23.82	130	J
6.	UNKNOWN	24.02	260	J
7.	UNKNOWN	24.74	170	J
8.	HYDROCARBON	25.04	130	J
9.	HYDROCARBON	26.27	170	J
10.	HYDROCARBON	28.61	300	J
11.	UNKNOWN	29.57	300	~~BJ~~ R
12.	HYDROCARBON	29.73	600	J N
13.	HYDROCARBON	30.80	850	J
14.	SUBSTITUTED 1,2-BENZENEDICAR	30.89	130	J
15.	HYDROCARBON	31.84	940	J
16.	HYDROCARBON	32.86	1000	J
17.	HYDROCARBON	33.86	850	J
18.	HYDROCARBON	34.88	810	J
19.	HYDROCARBON	35.83	300	J
20.	HYDROCARBON	37.02	850	J

Cw 7/1/92

EH 4/15

~~000913~~
001006

FORM I SV-TIC

3/90

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB38
UW-GW04

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0012

Sample wt/vol: 910 (g/mL) ML Lab File ID: B4483

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)Ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-Di-n-Propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)Methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-Methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	28	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	28	U
131-11-3	Dimethyl Phthalate	11	UJ
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	28	U
83-32-9	Acenaphthene	11	U

~~000993~~

FORM I SV-1 CW 7/1/92 3/90

EPA SAMPLE NO.

BGB38
UW-GW04

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0012

Sample wt/vol: 910 (g/mL) ML Lab File ID: B4483

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION (UG/L)	Q
51-28-5	2,4-Dinitrophenol	28	U
100-02-7	4-Nitrophenol	28	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
86-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	28	U
534-52-1	4,6-Dinitro-2-Methylphenol	28	U
86-30-6	N-Nitrosodiphenylamine (1)	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
87-86-5	Pentachlorophenol	28	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-Butylphthalate	11	U
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	11	U
56-55-3	Benzo(a)Anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	bis(2-Ethylhexyl)Phthalate	11 ~~4~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	11	U
205-99-2	Benzo(b)Fluoranthene	11	U
207-08-9	Benzo(k)Fluoranthene	11	UJ
50-32-8	Benzo(a)Pyrene	11	U
193-39-5	Indeno(1,2,3-cd)Pyrene	11	U
53-70-3	Dibenz(a,h)Anthracene	11	U
191-24-2	Benzo(g,h,i)Perylene	11	U

(1) - Cannot be separated from Diphenylamine

EA 4/15

Cw 7/1/92

~~000991~~

~~EPA SAMPLE NO.~~

BGB38
UW-GW04

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0012

Sample wt/vol: 910 (g/mL) ML Lab File ID: B4483

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: ____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.20	4	J N
2.	UNKNOWN	6.29	4	J N
3.	UNKNOWN	6.97	6	~~BJ~~ R
4.	UNKNOWN	24.51	2	J N
5.	UNKNOWN	29.50	7	~~J~~ R

CW 7/1/92

EH 4/15

~~000995~~

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB39
Dup GW-01

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0013

Sample wt/vol: 980 (g/mL) ML Lab File ID: B4484

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethyl Phthalate	10	U J
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

~~001029~~ 4W

001121

FORM I SV-1 Em 7/1/92 3/90

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB39

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0013

Sample wt/vol: 980 (g/mL) ML Lab File ID: B4484

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: ____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	26	U
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-Methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10 ~~8~~	~~J~~U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

~~001030~~ 8
4/N

001125
CW 7/1/92

EPA SAMPLE NO.

BGB39

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-0013

Sample wt/vol: 980 (g/mL) ML Lab File ID: B4484

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: ____ decanted: (Y/N) ___ Date Extracted: 03/13/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/01/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.20	4	J N
2.	UNKNOWN	6.79	3	~~BJ~~ R
3.	UNKNOWN	6.96	6	~~BJ~~ R
4.	UNKNOWN	29.49	6	~~J~~ R
5.	HYDROCARBON	29.64	2	~~J~~ R
6.	HYDROCARBON	30.70	2	J N
7.	HYDROCARBON	31.72	2	J N

@ 7/1/92 ~~001031~~

EPA SAMPLE NO.

BGB25
uw-GW01

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: ______

% Moisture: ______ decanted: (Y/N) ___ Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 03/13/92

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/28/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10 ~~0.010~~	~~JP~~ U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

CW 6/10/92

MM 4/15

~~001292~~

FORM I PEST 3/90

001287

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB28
UW-GW08

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-002

Sample wt/vol: 930.0 (g/mL) ML Lab File ID: ______

% Moisture: ______ decanted: (Y/N) ___ Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 03/13/92

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/28/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.054	U
319-85-7	beta-BHC	0.054	U
319-86-8	delta-BHC	0.054	U
58-89-9	Lindane	0.028	~~JP~~ R
76-44-8	Heptachlor	0.054	U
309-00-2	Aldrin	0.054	U
1024-57-3	Heptachlor epoxide	0.054	U
959-98-8	Endosulfan I	0.054	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.10 ~~0.0096~~	~~J~~ U
72-43-5	Methoxychlor	0.54	U
53494-70-5	Endrin ketone	0.11	U
7421-36-3	Endrin aldehyde	0.10 ~~0.015~~	~~BJ~~ U
5103-71-9	alpha-Chlordane	0.054	U
5103-74-2	gamma-Chlordane	0.054	U
8001-35-2	Toxaphene	5.4	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

[illegible] 6/9/92

MM 6/15

~~001302~~

001397

EPA SAMPLE NO.

BGB29 FB

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: ______

% Moisture: ______ decanted: (Y/N) ___ Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 03/13/92

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/29/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.010	~~P~~PJ ✓
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

cw 6/10/92 MM 4/5

00140 ~~001312~~

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BGB30 FB

Lab Name: ENSECO-EAST   Contract: 68D00163

Lab Code: EEAST   Case No.: 17902   SAS No.: ______   SDG No.: BGB25

Matrix: (soil/water) WATER   Lab Sample ID: 20407-004

Sample wt/vol: 980.0 (g/mL) ML   Lab File ID: ______

% Moisture: ______ decanted: (Y/N) ___   Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) CONT   Date Extracted: 03/13/92

Concentrated Extract Volume: 10000 (uL)   Date Analyzed: 03/29/92

Injection Volume: 1.00 (uL)   Dilution Factor: 1.00

GPC Cleanup: (Y/N) N   pH: ____   Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
319-84-6	alpha-BHC	0.051	U
319-85-7	beta-BHC	0.051	U
319-86-8	delta-BHC	0.0053	~~JP~~ R ✓
58-89-9	Lindane	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.012	~~JP~~ J ✓
72-43-5	Methoxychlor	0.51	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.051	U
5103-74-2	gamma-Chlordane	0.051	U
8001-35-2	Toxaphene	5.1	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

6/9/92
001417   ~~001322~~
MW 4/15

EPA SAMPLE NO.

BGB31 DI

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-005

Sample wt/vol: 900.0 (g/mL) ML Lab File ID: ______

% Moisture: ______ decanted: (Y/N) ___ Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 03/13/92

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/29/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.056	U
319-85-7	beta-BHC	0.056	U
319-86-8	delta-BHC	0.056	U
58-89-9	Lindane	0.056	U
76-44-8	Heptachlor	0.056	U
309-00-2	Aldrin	0.056	U
1024-57-3	Heptachlor epoxide	0.056	U
959-98-8	Endosulfan I	0.056	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.10 ~~0.011~~	~~JP~~ U ✓
72-43-5	Methoxychlor	0.56	U
53494-70-5	Endrin ketone	0.11	U
7421-36-3	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.056	U
5103-74-2	gamma-Chlordane	0.056	U
8001-35-2	Toxaphene	5.6	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

cw 6/9/92 ~~001332~~

001497 MK 4/15

EPA SAMPLE NO.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

BGB32
UW-SS01

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-006

Sample wt/vol: 30.1 (g/mL) G Lab File ID: ______

% Moisture: 22 decanted: (Y/N) N Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/19/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 04/01/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.27	~~JP~~ R ✓
319-85-7	beta-BHC	2.2	U J.
319-86-8	delta-BHC	2.2	U
58-89-9	Lindane	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'-DDE	4.2	U
72-20-8	Endrin	4.2	U
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'-DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'-DDT	4.2	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
7421-36-3	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	42	U
11104-28-2	Aroclor-1221	86	U
11141-16-5	Aroclor-1232	42	U
53469-21-9	Aroclor-1242	42	U
12672-29-6	Aroclor-1248	42	U
11097-69-1	Aroclor-1254	160	~~P~~
11096-82-5	Aroclor-1260	42	U

CW 6/9/92 M.H. 4/15/92

001437 ~~001342~~

USE THIS DATA

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB33
MW-5502

me: ENSECO-EAST Contract: 68D00163

de: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

(soil/water) SOIL Lab Sample ID: 20407-007

wt/vol: 30.3 (g/mL) G Lab File ID: ______

ture: 15 decanted: (Y/N) N Date Received: 03/11/92

tion: (SepF/Cont/Sonc) SONC Date Extracted: 03/19/92

rated Extract Volume: 5000 (uL) Date Analyzed: 04/01/92

ion Volume: 1.00 (uL) Dilution Factor: 2.00

eanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	4.0	U J
319-85-7	beta-BHC	4.0	U
319-86-8	delta-BHC	4.0	U
58-89-9	Lindane	4.0	U
76-44-8	Heptachlor	4.0	U
309-00-2	Aldrin	4.0	U
1024-57-3	Heptachlor epoxide	4.0	U
959-98-8	Endosulfan I	4.0	U
60-57-1	Dieldrin	7.7	U
72-55-9	4,4'-DDE	7.7	U
72-20-8	Endrin	7.7	U
33213-65-9	Endosulfan II	7.7	U
72-54-8	4,4'-DDD	7.7	U
1031-07-8	Endosulfan sulfate	7.7	U
50-29-3	4,4'-DDT	7.7	U
72-43-5	Methoxychlor	40	U
53494-70-5	Endrin ketone	7.7	U
7421-36-3	Endrin aldehyde	7.7	U
5103-71-9	alpha-Chlordane	4.0	U
5103-74-2	gamma-Chlordane	4.0	U
8001-35-2	Toxaphene	400	U
12674-11-2	Aroclor-1016	77	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	77	U
53469-21-9	Aroclor-1242	77	U
12672-29-6	Aroclor-1248	77	U
11097-69-1	Aroclor-1254	4200* ~~3000~~	
11096-82-5	Aroclor-1260	77	U

* FROM DILUTION

~~001351~~ 6/9/92

001449

USE THIS DATA

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

BGB34
UW-SS03

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-008

Sample wt/vol: 30.1 (g/mL) G Lab File ID: ______

% Moisture: 18 decanted: (Y/N) N Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/19/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 04/01/92

Injection Volume: 1.00 (uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	CONCENTRATION	Q
319-84-6	alpha-BHC	41	U J
319-85-7	beta-BHC	41	U
319-86-8	delta-BHC	41	U
58-89-9	Lindane	41	U
76-44-8	Heptachlor	41	U
309-00-2	Aldrin	41	U
1024-57-3	Heptachlor epoxide	41	U
959-98-8	Endosulfan I	41	U
60-57-1	Dieldrin	80	U
72-55-9	4,4'-DDE	80	U
72-20-8	Endrin	80	U
33213-65-9	Endosulfan II	80	U
72-54-8	4,4'-DDD	80	U
1031-07-8	Endosulfan sulfate	80	U
50-29-3	4,4'-DDT	80	U
72-43-5	Methoxychlor	410	U
53494-70-5	Endrin ketone	80	U
7421-36-3	Endrin aldehyde	80	U
5103-71-9	alpha-Chlordane	41	U
5103-74-2	gamma-Chlordane	41	U
8001-35-2	Toxaphene	4100	U
12674-11-2	Aroclor-1016	800	U
11104-28-2	Aroclor-1221	1600	U
11141-16-5	Aroclor-1232	800	U
53469-21-9	Aroclor-1242	800	U
12672-29-6	Aroclor-1248	800	U
11097-69-1	Aroclor-1254	56000* ~~41000~~	~~E~~
11096-82-5	Aroclor-1260	800	U

* FROM DILUTION

ccw 6/9/92

MM 9/15/92

~~001391~~

001485

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BGB35
UW-5504

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) SOIL Lab Sample ID: 20407-009

Sample wt/vol: 30.1 (g/mL) G Lab File ID: ______

% Moisture: 20 decanted: (Y/N) N Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/19/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 04/01/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.1	U J
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	2.1	U
58-89-9	Lindane	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	4.1	U
72-55-9	4,4'-DDE	9 ~~4.1~~	~~U~~PN
72-20-8	Endrin	4.1	U
33213-65-9	Endosulfan II	4.1	U
72-54-8	4,4'-DDD	39	PN
1031-07-8	Endosulfan sulfate	4.1	U
50-29-3	4,4'-DDT	23	
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.1	U
7421-36-3	Endrin aldehyde	4.1	U
5103-71-9	alpha-Chlordane	16	P
5103-74-2	gamma-Chlordane	9.7	PN
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	41	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	41	U
53469-21-9	Aroclor-1242	41	U
12672-29-6	Aroclor-1248	41	U
11097-69-1	Aroclor-1254	270	P
11096-82-5	Aroclor-1260	41	U

@ 6/9/92 ~~001427~~ MM 6/15/92

USE THIS DATA

REFERENCE # 10
PAGE 150 OF 212

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

~~EPA SAMPLE NO.~~

BGB36
Dup UW-SS04

Name: ENSECO-EAST Contract: 68D00163

Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

rix: (soil/water) SOIL Lab Sample ID: 20407-010

ple wt/vol: 30.1 (g/mL) G Lab File ID: ______

oisture: 22 decanted: (Y/N) N Date Received: 03/11/92

raction: (SepF/Cont/Sonc) SONC Date Extracted: 03/19/92

centrated Extract Volume: 5000 (uL) Date Analyzed: 04/01/92

ection Volume: 1.00 (uL) Dilution Factor: 1.00

Cleanup: (Y/N) Y pH: 7.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	2.2	U	J
319-85-7	beta-BHC	2.2	U	
319-86-8	delta-BHC	2.2	U	
58-89-9	Lindane	2.2	U	
76-44-8	Heptachlor	2.2	U	
309-00-2	Aldrin	2.2	U	
1024-57-3	Heptachlor epoxide	2.2	U	
959-98-8	Endosulfan I	2.2	U	
60-57-1	Dieldrin	4.2	U	
72-55-9	4,4'-DDE	10 ~~4.2~~	~~U~~	N
72-20-8	Endrin	4.2	U	
33213-65-9	Endosulfan II	4.2	U	
72-54-8	4,4'-DDD	* 170 ~~200~~		
1031-07-8	Endosulfan sulfate	4.2	U	
50-29-3	4,4'-DDT	40	P	
72-43-5	Methoxychlor	22	U	
53494-70-5	Endrin ketone	4.2	U	
7421-36-3	Endrin aldehyde	4.2	U	
5103-71-9	alpha-Chlordane	15		
5103-74-2	gamma-Chlordane	11	P	
8001-35-2	Toxaphene	220	U	
12674-11-2	Aroclor-1016	42	U	
11104-28-2	Aroclor-1221	86	U	
11141-16-5	Aroclor-1232	42	U	
53469-21-9	Aroclor-1242	42	U	
12672-29-6	Aroclor-1248	42	U	
11097-69-1	Aroclor-1254	220	~~P~~	
11096-82-5	Aroclor-1260	42	U	

* FROM DILUTION

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MM 4/13/92

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FORM I PEST 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGB38
UW-GW04

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-012

Sample wt/vol: 940.0 (g/mL) ML Lab File ID: ______

% Moisture: ______ decanted: (Y/N) ___ Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 03/13/92

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/29/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.053	U
319-85-7	beta-BHC	0.053	U
319-86-8	delta-BHC	0.053	U
58-89-9	Lindane	0.053	U
76-44-8	Heptachlor	0.053	U
309-00-2	Aldrin	0.053	U
1024-57-3	Heptachlor epoxide	0.053	U
959-98-8	Endosulfan I	0.053	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.10 ~~0.014~~	~~JP~~ U
72-43-5	Methoxychlor	0.53	U
53494-70-5	Endrin ketone	0.11	U
7421-36-3	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.053	U
5103-74-2	gamma-Chlordane	0.053	U
8001-35-2	Toxaphene	5.3	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

Cw 6/10/92

MH 4/15/

~~001163~~

FORM I PEST 3/90

EPA SAMPLE NO.

BGB39
Dup uwGW01

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ENSECO-EAST Contract: 68D00163

Lab Code: EEAST Case No.: 17902 SAS No.: ______ SDG No.: BGB25

Matrix: (soil/water) WATER Lab Sample ID: 20407-013

Sample wt/vol: 1000 (g/mL) ML Lab File ID: ______

% Moisture: ______ decanted: (Y/N) ___ Date Received: 03/11/92

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 03/13/92

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/29/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10 ~~0.011~~	~~JP~~ U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10 ~~0.016~~	~~BJ~~ U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

cw 6/10/92 MM 6/19

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EBASCO ENVIRONMENTAL **Interoffice Correspondence**

	DATE 7/24/92		FILE REF
TO EDGAR AGUADO	OFFICE LOCATION	LYNDHURST	[DPT-0724C
FROM A. OLIS	OFFICE LOCATION	LYNDHURST	

SUBJECT **CLP QUALITY ASSURED DATA PACKAGE**

Attached please find a copy of the following validated data package(s) received from the RSCC for the UNIVERSAL WASTE SITE.

CASE#/SAS#	LABORATORY	SAMPLES	ANALYSIS
17902	AATS	5S/7W	INORGANICS

The number of Form 1's were checked and found to agree with the number of samples listed in the Record of Communication. Any problems with the data package(s), *e.g.* illegible sample results or validation flags, missing Form 1's, etc. must be brought to my attention within one week. If no specific complaints are received within this period, the package will be considered complete and problem-free. Please also note that RSCC will archive all the data packages and store them in the warehouse. Once stored, it becomes difficult to retrieve the packages.

Please sign below in acknowledgment of receipt of this package and return one copy to me.

REPLY BY: 7/31/92

SIGNATURE: DATE:

PROBLEMS: Specify sample and/or page numbers:

- ☐ Illegible validation flags
- ☐ Illegible/missing form 1's
- ☐ Other (PLEASE SPECIFY):

COPY FOR: ☒ SITE MANAGER ☐ CLP FILE

EBASCO ENVIRONMENTAL

Interoffice Correspondence

DATE 7/24/92 FILE REF

TO EDGAR AGUADO OFFICE LOCATION LYNDHURST [DPT-0724C

FROM A. OLIS OFFICE LOCATION LYNDHURST

SUBJECT **CLP QUALITY ASSURED DATA PACKAGE**

Attached please find a copy of the following validated data package(s) received from the RSCC for the UNIVERSAL WASTE SITE.

CASE#/SAS#	LABORATORY	SAMPLES	ANALYSIS
17902	AATS	5S/7W	INORGANICS

The number of Form 1's were checked and found to agree with the number of samples listed in the Record of Communication. Any problems with the data package(s), *e.g.* illegible sample results or validation flags, missing Form 1's, etc. must be brought to my attention within one week. If no specific complaints are received within this period, the package will be considered complete and problem-free. Please also note that RSCC will archive all the data packages and store them in the warehouse. Once stored, it becomes difficult to retrieve the packages.

Please sign below in acknowledgment of receipt of this package and return one copy to me.

REPLY BY: 7/31/92

SIGNATURE: DATE:

PROBLEMS: Specify sample and/or page numbers:

- ☐ Illegible validation flags
- ☐ Illegible/missing form 1's
- ☐ Other (PLEASE SPECIFY):

COPY FOR: ☐ SITE MANAGER ☒ CLP FILE

RECORD OF COMMUNICATION

☐ PHONE CALL ☐ DISCUSSION ☐ FIELD TRIP ☐ CONFERENCE ☐ OTHER (SPECIFY)

(Record of item checked above)

TO:
GEORGE KARRAS
EPA/MMB

FROM:
RSCC/ESAT

DATE 5/21/92

TIME

SUBJECT
CLP Inorganic Data Packages for Quality Assurance Review

SUMMARY OF COMMUNICATION

Attached are the following CLP Inorganic/SAS Data Packages to be reviewed for Quality Assurance.

SITE	CASE/SAS NO.	LABORATORY	MATRIX	NO. of SAMPLES
UNIVERSAL WASTE INC.	17902	AATS	SOIL	5
			WATER	7

AEBA/SSI

CONCLUSIONS, ACTION TAKEN OR REQUIRED

RECEIVED
JUL 20 1992
S & M BRANCH

INFORMATION COPIES
TO:

#17902

REFERENCE # 10
PAGE 156 OF 212

Evaluation of Metals Data for the Contract Laboratory Program (CLP)

based on

SOW. 3/90

(SOP Revision XI)

PREPARED BY: Hanif Sheikh DATE: 1-30-92
Hanif Sheikh, Quality Assurance Chemist
Toxic and Hazardous Waste Section

APPROVED BY: Kevin W. Kubik DATE: 1-30-92
Kevin Kubik, Chief
Toxic and Hazardous Waste Section

APPROVED BY: Robert H. Runyon DATE: 1/30/92
Robert Runyon, Chief
Monitoring Management Branch

STANDARD OPERATING PROCEDURE

Title: Evaluation of Metals Data for the Contract Laboratory Program

Date: Jan. 1992
Number: HW-2
Revision: 11

1.0 Scope

1.1 This procedure is applicable to inorganic data obtained from contractor laboratories working for Hazardous Waste Site Contract Laboratory Program (CLP).

1.2 The data validation is based upon analytical and quality assurance requirements specified in Statement of Work (SOW) 3/90 .

2.0 Responsibilities - Data reviewers will complete the following tasks as assigned by the Data Review Coordinator:

2.1. For a total review:

2.1.1 Data Assessment - "Total Review-Inorganics" Checklist Appendix (A.1). The reviewer must answer every question on the checklist.

2.1.2 Data Assessment - Data Assessment Narrative (Appendix A.2) The answer on the checklist must match the action in the narrative (appendix A.2) and on Form I's. Do not use pencil to write the narrative.

2.1.3 Contract Non-Compliance - SMO Report (Appendix A.3) This report is to be completed only when a serious contract violation is encountered, or upon the request of the Data Validation Task Monitor, or Technical Project Officer (TPO). Forward 5 copies: one each for internal files, appropriate Regional TPO, Sample Management Office (SMO) and last two addresses of Mailing List for Data Reviewers (Appendix A.4). In other cases, all contract violations should be appended to the end of the Data Assessment Narrative (Sec. A.2.2).

2.1.4 CLP Data Assessment Summary Forms

2.1.4.1 Appendix A.5
Fill in the total number of analytes analyzed by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in boxes where analyses were not performed, or criteria do not apply.

2.1.4.2 Appendix A.6
Data reviewer is also required to fill out Inorganic Regional Data Assessment form (Appendix A.7) provided by EPA Headquarters. Codes listed on the form will be used to describe the Data Assessment Summary.

.1.5 <u>Data Review Log</u>: It is recommended that each data reviewer should maintain a log of the reviews completed to include: a. date of start of case review

b. date of completion of case review
c. site
d. case number
e. contract laboratory
f. number of samples
g. matrix
h. hours worked
i. reviewer's initials

2.1.6 <u>Telephone Record Log</u> - the data reviewer should enter the bare facts of inquiry, before initiating any phone conversation with CLP laboratory. After the case review has been completed, mail white copy of Telephone Record Log to the laboratory and pink copy to SMO. File yellow copy in the Telephone Record Log folder, and attach a xerox copy of the Telephone Record Log to the completed Data Assessment Narrative (Appendix A.2).

2.1.7 <u>Forwarded Paperwork</u>

1.7.1 Upon completion of review, the following are to be forwarded to the Regional Sample Control Center (RSCC) located in the Surveillance and Monitoring Branch:
a. data package
b. completed data assessment checklist (Appendix A.1,original)
c. SMO Contract Compliance Screening (CCS)
d. Record of Communication (copy)
e. CLP Reanalysis Request/Approval Record (original + 3 copies)
f. Appendix A.6 (original).

1.7.2 Forward 2 copies of completed Data Assessment Narrative (Appendix A.2) along with <u>2</u> copies of the Inorganic Data Assessment Form (Appendix A.6) and Telephone Record Log , if any,: one each for appropriate Regional TPO, and the other one to EPA EMSL office in Las Vegas. The addresses of TPOs and EPA office in Las Vegas are given in Appendix A-4.

.1.8 <u>Filed Paperwork</u> - Upon completion of review, the following are to be filed within MMB files:
a. Two copies of completed Data Assessment Narrative (Appendix A.2) each carrying Appendix A.6.
b. Telephone Record Log (copy)
c. SMO Report (copy Appendix A-3)
d. CLP Reanalysis Request/Approval Record (copy)

tle: Evaluation of Metals Data for the Contract Laboratory Program

Date: Jan. 1992
Number: HW-2
Revision: 11

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0 <u>Data Completeness</u>
Each data package is checked by a Regional Sample Control Coordinator (RSSC) for completeness. A data package is assumed to be complete when all the deliverables required under the contract are present. If a data package is incomplete,the RSSC would call the laboratory for missing document(s). If the laboratory does not respond within a week, SMO and MMB coordinator of Region II will be notified.

0 <u>Rejection of Data</u> - All values determined to be unacceptable on the Inorganic Analysis Data Sheet (Form I) must be lined over with a red pencil. As soon as any review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.

0 <u>Acceptance Criteria</u> - In order that reviews be consistent among reviewers, acceptance criteria as stated in Appendix A.1 (pages 4-25) should be used. Additional guidance can be found in the National Inorganic Functional Guidelines of October 1, 1989.

.0 <u>SMO Contract Compliance Screening (CCS)</u> - This is intended to aid reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from laboratory in response to CCS must be used by the reviewer.

0 <u>Request for Reanalysis</u> - Data reviewers must note all items of contract non-compliance within Data Assessment Narrative.If holding times and sample storage times have not been exceeded, TPO may request reanalysis if items of non-compliance are critical to data assessment. Requests are to be made on "CLP Re-Analysis Request/Approval Record".

0 <u>Record of Communication</u> - Provided by the Regional Sample Control Center (RSCC) to indicate which data packages have been received and are ready to be reviewed.

0 <u>Rounding off numbers</u> - The data reviewer will follow the standard practice.

itle: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.1: Data Assessment - Contract Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

	YES	NO	N/A
.1.1 <u>Contract Compliance Screening Report</u> (CCS) - Present?	[✓]	___	___
<u>ACTION</u>: If no, contact RSCC.			
..1.2 <u>Record of Communication (from RSCC)</u> - Present?	[✓]	___	___
<u>ACTION</u>: If no, request from RSCC.			
.1.3 <u>Trip Report</u> - Present and complete?	[ ]	___	___
<u>ACTION</u>: If no, contact RSCC for trip report.			
.1.4 <u>Sample Traffic Report</u> - Present?	[✓]	___	___
Legible?	[✓]	___	___
<u>ACTION</u>: If no, request from Regional Sample Control Center (RSCC).			
.1.5 <u>Cover Page</u> - Present?	[✓]	___	___
Is cover page properly filled in and signed by the lab manager or the manager's designee?	[✓]	___	___
<u>ACTION</u>: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	[✓]	___	___
Do sample numbers on cover page agree with sample numbers on:			
(a) Traffic Report Sheet?	[✓]	___	___
(b) Form I's?	[✓]	___	___
<u>ACTION</u>: If no for any of the above, contact RSCC for clarification.			

		Yes	No	N/A
1.6	Form I to IX			
1.6.1	Are all the Form I through Form IX labeled with:			
	Laboratory name?	[✓]	___	___
	Case/SAS number?	[✓]	___	___
	EPA sample No.?	[✓]	___	___
	SDG No.?	[✓]	___	___
	Contract No.?	[✓]	___	___
	Correct units?	[✓]	___	___
	Matrix?	[✓]	___	___

ACTION: If no for any of the above, note under Contract Problem/Non-Compliance section of the "Data Assessment Narrative".

		Yes	No	N/A
1.6.2	Do any computation/transcription errors exceed 10% of reported values on Forms I-IX for:			
	(NOTE: Check all forms against raw data.)			
	(a) all analytes analyzed by ICP?	[✓]	___	___
	(b) all analytes analyzed by GFAA?	[✓]	___	___
	(c) all analytes analyzed by AA Flame?	[ ]	___	✓
	(d) Mercury?	[✓]	___	___
	(e) Cyanide?	[ ]	___	✓

ACTION: If yes, prepare Telephone Log, contact laboratory for corrected data and correct errors with red pencil and initial.

itle: Evaluation of Metals Data for the Contract Laboratory Program Appendix A.1: Data Assessment - Contract Compliance (Total Review)	Date: Jan. 1992 Number: HW-2 Revision: 11

		YES	NO	N/A
.1.7	**Raw Data**			
.1.7.1	Digestion Log* for flame AA/ICP (Form XIII) present?	[✓]	___	___
	Digestion Log for furnace AA Form XIII present?	[✓]	___	___
	Distillation Log for mercury Form XIII present?	[✓]	___	___
	Distillation Log for cyanides Form XIII present?	[ ]	___	✓
	Are pH values (pH<2 for all metals, pH>12 for cyanide) present?	[✓]	___	___
	*Weights, dilutions and volumes used to obtain values.			
	Percent solids calculation present for soils/sediments?	[✓]	___	___
	Are preparation dates present on sample preparation logs/bench sheets?	[✓]	___	___
.1.7.2	Measurement read out record present? ICP	[✓]	___	___
	Flame AA	[ ]	___	✓
	Furnace AA	[✓]	___	___
	Mercury	[✓]	___	___
	Cyanides	[ ]	___	✓
.1.7.3	Are all raw data to support all sample analyses and QC operations present?	[✓]	___	___
	Legible?	[✓]	___	___
	Properly Labeled?	[✓]	___	___

ACTION: If no for any of the above questions in sections A.1.7.1 through A.1.7.3, write Telephone Record Log and contact laboratory for resubmittals.

		YES	NO	N/A
.8	**Holding Times** - (aqueous and soil samples)			
	(Examine sample traffic reports and digestion/distillation logs.)			
	Mercury analysis (28 days). . . . . exceeded?	___	[✓]	___
	Cyanide distillation (14 days). . . . . exceeded?	___	[___]	✓
	Other Metals analysis (6 months). . . . exceeded?	___	[✓]	___

NOTE: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of preparation (from raw data). Attach to checklist.

ACTION: If yes, reject (red-line) values less than Instrument Detection Limit (IDL) and flag as estimated (J) the values above IDL even though sample(s) was preserved properly.

		YES	NO	N/A
.8.2	Is pH of aqueous samples for: Metals Analysis >2?	___	[✓]	___
	Cyanides Analysis <12?	___	[___]	✓

Action: If yes, flag the associated metals and cyanides data as estimated.

.1.9 **Form I (Final Data)**

		YES	NO	N/A
.9.1	Are all Form I's present and complete?	[✓]	___	___

ACTION: If no, prepare telephone record log and contact laboratory for submittal.

		YES	NO	N/A
.9.2	Are correct units (ug/l for waters and mg/kg for soils) indicated on Form I's?	[✓]	___	___
	Are soil sample results for each parameter corrected for percent solids?	[✓]	___	___
	Are all "less than IDL" values properly coded with "U"?	[✓]	___	___

		YES	NO	N/A
	Are the correct concentration qualifiers used with final data?	[✓]	___	___

ACTION: If no for any of the above, prepare Telephone Record Log, and contact laboratory for corrected data.

		YES	NO	N/A
..1.9.3	Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	[✓]	___	___
	Was a brief physical description of samples given on Form I's?	[✓]	___	___
	Was the dilution of any sample diluted beyond the requirements of the contract noted on Form I or Form XIV?	✓	[ ]	___

ACTION: If no for any of the above, note under Contract-Problem/Non-Compliance of the"Data Assessment Narrative".

..1.10 **Calibration**

		YES	NO	N/A
..1.10.1	Is record of at least 2 point calibration present for ICP analysis?	[✓]	___	___
	Is record of 5 point calibration present for Hg analysis?	[✓]	___	___
	Is record of 4 point calibration present for:			
	Flame AA?	[ ]	___	✓
	Furnace AA?	[✓]	___	___
	Cyanides?	[ ]	___	✓
	Is one calibration standard at the CRDL level for all AA (except Hg) and cyanides analyses?	[✓]	___	___

ACTION: If no for any of the above, write in the Contract Problem/Non-Compliance section of the "Data Assessment Narrative".

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.1: Data Assessment - Contract Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
A.1.10.2	Is correlation coefficient less than 0.995 for:			
	Mercury Analysis?		[✓]	
	Cyanide Analysis?		[ ]	✓
	Atomic Absorption Analysis? Pb	✓	[ ]	

ACTION: If yes, flag the associated data as estimated.

NOTE: The data validator shall calculate the correlation coefficient using concentrations of the standards and the corresponding instrument response (e.g. absorbance, peak area, peak height, etc.).

		YES	NO	N/A
A.1.10.3	In the instance where less than 4 standards are measured in absorbance (or peak area, peak height, etc.) mode, are the remaining standards analyzed in concentration mode immediately after calibration within ±10% of the true values?	[✓]		

ACTION: If no, flag the associated data as estimated if standards are not within ±10% of true values. Do not flag the data as estimated in linear range indicated by good recovery of standard(s).

A.1.11 Form II A (Initial and Continuing Calibration Verification)-

		YES	NO	N/A
A.1.11.1	Present and complete for every metal and cyanide?	[✓]		
	Present and complete for AA and ICP when both are used for the same analyte?	[ ]		✓

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.11.2 Circle on each Form IIA all percent recoveries that are outside the contract windows.
Are all calibration standards (initial and continuing) within control limits:

	YES	NO	N/A
Metals- 90-110%R?	[✓]		
Hg - 80-120%R?	[✓]		
Cyanides- 85-115%R?	[ ]		✓

	YES	NO	N/A

ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard with %R between 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ) if the ICV or CCV %R is 75-89% (CN, 70-84% ; HG, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or CCV is outside the range 75-125% (CN, 70-130%; Hg, 65-135%). Qualify five samples on either side of verification standard out of control limits.

	YES	NO	N/A
A.1.11.3 Was continuing calibration performed every 10 samples or every 2 hours?	[✓]	___	___
Was ICV for cyanides distilled?	[ ]	___	✓

ACTION: If no for any of the above, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".

A.1.12 Form II B (CRDL Standards for AA and ICP) -

	YES	NO	N/A
A.1.12.1 Was a CRDL standard (CRA) analyzed after initial calibration for all AA metals (except Hg)?	[✓]	___	___
Was a mid-range calib. verification standard distilled and analyzed for cyanide analysis?	[ ]	___	✓
Was a 2xCRDL (or 2xIDL when IDL>CRDL) analyzed (CRI) for each ICP run? (Note: CRI for AL,Ba,Ca,Fe,Mg,Na,or K is not required.)	[✓]	___	___

ACTION: If no for any of the above, flag as estimated all data falling within the affected ranges. The affected ranges are:
AA Analysis - **True Value ± CRDL
ICP Analysis - **True Value ± 2CRDL
CN Analysis - **True Value ± 0.5 x True Value.

**True value of CRA, CRI or mid-range standard. Substitute IDL for CRDL when IDL > CRDL. Compute the concentration of the missing mid-range standard from the calibration range.

		YES	NO	N/A
.1.12.2	Was CRI analyzed after ICV/ICB and before the final CCV/CCB, and twice every eight hours of ICP run?	[✓]	___	___

ACTION: If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".

..1.12.3 Circle on each Form IIB all the percent recoveries that are outside the acceptance windows.

Are CRA and CRI standards within control limits:

Cd, Cu, Mn, Se, Pb

	YES	NO	N/A
Metals 80 - 120%R?	[ ]	✓	___

Is mid-range standard within control limits:

	YES	NO	N/A
Cyanide 80 - 120%R?	[ ]	___	✓

ACTION: Flag as estimated all sample results within the affected range if the recovery of the standard is between 50-79%; flag only positive data within the affected range if the recovery is between 121-150%; reject all data within the affected range if the recovery is less than 50%; reject only positive data within the affected range if the recovery is greater than 150%. Qualify 50% of the samples on either side of CRI standard outside the control limits.

Note: Flag or reject the final results only when sample raw data are within the affected ranges and the CRDL standards are outside the acceptance windows.

..1.13 Form III (Initial and Continuing Calibration Blanks)

		YES	NO	N/A
..1.13.1	Present and complete?	[✓]	___	___
	For both AA and ICP when both are used for the same analyte?	[ ]	___	✓
	Was an initial calibration blank analyzed?	[✓]	___	___
	Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?	[✓]	___	___

	YES	NO	N/A

<u>ACTION</u>: If no, prepare Telephone Record Log, contact laboratory and write in the Contract-Problems/ Non-Compliance section of the "Data Assessment Narrative".

1.13.2 Circle on each Form III all calibration blank values that are above CRDL (or 2 x IDL when IDL > CRDL).

	YES	NO	N/A
Are all calibration blanks (when IDL<CRDL) less than or equal to the Contract Required Detection Limits (CRDLs)?	[✓]	___	___
Are all calibration blanks less than two times Instrument Detection Limit (when IDL>CRDL)?	[✓]	___	___

ACTION: If no for any of the above, flag as estimated (J) positive sample results when raw sample value is less than or equal to calibration blank value analyzed between calibration blank with value over CRDL (or 2xIDL) and nearest good calibration blank.
Flag five samples on either side of the calibration blank outside the control limits.

.1.14 FORM III (Preparation Blank) -
(Note: The preparation blank for mercury is the same as the calibration blank.)

..1.14.1 Was one prep. blank analyzed for:

	YES	NO	N/A
each Sample Delivery Group (SDG)?	[✓]	___	___
each batch of digested samples?	[✓]	___	___
each matrix type?	[✓]	___	___
both AA and ICP when both are used for the same analyte?	[ ]	___	✓

ACTION: If no for any of the above, flag as estimated (J) all the associated positive data <10 x IDLs for which prep. blank was not analyzed.

NOTE: If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).

		YES	NO	N/A
.1.14.2	Is concentration of prep. blank value greater than the CRDL when IDL is less than or equal to CRDL?	___	[✓]	___
	If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep.blank?	___	[ ]	✓

ACTION: If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value.

		YES	NO	N/A
..1.14.3	Is concentration of prep. blank value (Form III) less than two times IDL, when IDL is greater than CRDL?	[✓]	___	___

ACTION: If no, reject (red-line) all positive sample results when sample raw data are less than 10 times the prep. blank value.

		YES	NO	N/A
..1.14.4	Is concentration of prep. blank below the negative CRDL?	___	[✓]	___

ACTION: If yes, reject (red-line) all associated sample results less than 10xCRDL.

..1.15 Form IV (ICP Interference Check Sample)

		YES	NO	N/A
..1.15.1	Present and complete?	[✓]	___	___

(NOTE: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)

	YES	NO	N/A
Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	[✓]	___	___

ACTION: If no, flag as estimated (J) all the samples for which AL, Ca, Fe, or Mg is higher than in ICS.

..1.15.2 Circle all values on each Form IV that are more than ± 20% of true or established mean value.

	YES	NO	N/A
Are all Interference Check Sample results inside the control limits (± 20%)?	[✓]	___	___
If no, is concentration of Al, Ca, Fe, or Mg lower than the respective concentration in ICS?	[ ]	___	✓

	YES	NO	N/A

ACTION: If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150%; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").

1.16 Form V A (Spiked Sample Recovery - Pre-Digestion/Pre-Distillation)- (Note: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only.)

		YES	NO	N/A
1.16.1	Present and complete for: each SDG?	[✓]	___	___
	each matrix type?	[✓]	___	___
	each conc. range (i.e. low, med., high)?	[✓]	___	___
	For both AA and ICP when both are used for the same analyte?	[ ]	___	✓

ACTION: If no for any of the above, flag as estimated (J) all the positive data less than four times the spiking levels specified in SOW for which spiked sample was not analyzed.

but water Hg prepped 1 wk later.

NOTE: If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).

		YES	NO	N/A
1.16.2	Was field blank used for spiked sample?	___	[✓]	___

ACTION: If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.

1.16.3 Circle on each Form VA all spike recoveries that are outside control limits (75% to 125%).

	YES	NO	N/A
Are all recoveries within control limits?	[ ]	✓	___
If no, is sample concentration greater than or equal to four times spike concentration?	Pb [✓]	Cu, Mn, ✓ Ag, Zn	___

	YES	NO	N/A

ACTION: If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.

	YES	NO	N/A
Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	[✓]	___	___

ACTION: If no, write in the Contract - Problem/Non - Compliance section of "Data Assessment Narrative".

.1.16.4 Aqueous

Are any spike recoveries:

	YES	NO	N/A
(a) less than 30%?	___	[✓]	___
(b) between 30-74%?	___	[✓]	___
(c) between 126-150%?	___	[✓]	___
(d) greater than 150%?	___	[✓]	___

ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".

.1.16.5 Soil/Sediment

Are any spike recoveries:

	YES	NO	N/A
(a) less than 10%?	___	[✓]	___
(b) between 10-74%?	✓	[ ]	___
(c) between 126-200%?	___	[✓]	___
(d) greater than 200%?	___	[✓]	___

	YES	NO	N/A

ACTION: If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".

.1.17 Form VI (Lab Duplicates)

	YES	NO	N/A
.1.17.1 Present and complete for: each SDG?	[✓]	___	___
each matrix type?	[✓]	___	___
each concentration range (i.e. low, med., high)?	[✓]	___	___
both AA and ICP when both are used for the same analyte?	[ ]	___	✓

ACTION: If no for any the above, flag as estimated (J) all the data $\geq$CRDL* for which duplicate sample was not analyzed.

Note: 1. If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated.
2. If percent solids for soil sample and its duplicate differ by more than 1%, prepare a Form VI for each duplicate pair, report concentrations in ug/L on wet weight basis and calculate RPD or Difference for each analyte.

	YES	NO	N/A
.1.17.2 Was field blank used for duplicate analysis?	___	[✓]	___

ACTION: If yes, flag all data $\geq$CRDL* as estimated (J) for which field blank was used as duplicate.

	YES	NO	N/A
.1.17.3 Are all values within control limits (RPD 20% or difference $\leq \pm$CRDL)?	[✓]	___	___
If no, are all results outside the control limits flagged with an * on Form I's and VI?	[ ]	___	✓

ACTION: If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".

* Substitute IDL for CRDL when IDL > CRDL.

	YES	NO	N/A

NOTE: 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.
2. If the result of lab duplicate analyzed by GFAA is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria to metals analyzed by GFAA.

1.17.4 Aqueous

Circle on each Form VI all values that are:

RPD > 50%, or
Difference > CRDL*

	YES	NO	N/A
Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[✓]	___
Is any difference** between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[✓]	___

ACTION: If yes, flag the associated data as estimated.

1.17.5 Soil/Sediment

Circle on each Form VI all values that are:

RPD > 100%, or

Difference > 2 x CRDL*

Is any RPD (where sample and duplicate are both greater than or equal to 5 times *CRDL) :

	YES	NO	N/A
> 100%?	___	[✓]	___

Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x*CRDL) :

	YES	NO	N/A
> 2x*CRDL?	___	[✓]	___

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

	YES	NO	N/A

ACTION: If yes, flag the associated data as estimated.

.1.18 Field Duplicates

	YES	NO	N/A
.1.18.1 Were field duplicates analyzed?	[✓]	___	___

ACTION: If yes, prepare a Form VI for each aqueous field duplicate pair. Prepare a Form VI for each soil duplicate pair, if percent solids for sample and its duplicate differ by more than 1%; report concentrations of soils in ug/l on wet weight basis and calculate RPDs or Difference for each analyte.

NOTE: 1. Do not calculate RPD when both values are less than IDL.
2. Flag all associated data only for field duplicate pair.

.1.18.2 Aqueous

Circle all values on self prepared Form VI for field duplicates that are:

RPD > 50%, or
Difference > CRDL*

	YES	NO	N/A
Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[ ]	✓
Is any **difference between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[ ]	✓

ACTION: If yes, flag the associated data as estimated.

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

	YES	NO	N/A

..1.18.3 Soil/Sediment

Circle all values on self prepared Form VI for field duplicates that are:

RPD >100%, or

Difference > 2 x CRDL*

	YES	NO	N/A
Is any RPD (where sample and duplicate are both greater than 5 times *CRDL) : >100%?	___	[✓]	___
Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x *CRDL): >2x *CRDL?	___	[ ]	___

ACTION: If yes, flag the associated data as estimated.

..1.19 Form VII (Laboratory Control Sample) (Note: LCS - not required for aqueous Hg and cyanide analyses.)

..1.19.1 Was one LCS prepared and analyzed for:

	YES	NO	N/A
each SDG?	[✓]	___	___
each batch samples digested/distilled?	[✓]	___	___
both AA and ICP when both are used for the same analyte?	[ ]	___	✓

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory for submittal of results of LCS. Flag as estimated (J) all the data for which LCS was not analyzed.

NOTE: If only one LCS was analyzed for more than 20 samples, then first 20 samples close to LCS do not have to be flagged as estimated.

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A

.1.19.2 Aqueous LCS

Circle on each Form VII the LCS percent recoveries outside control limits (80 - 120%) except for aqueous Ag and Sb.

		YES	NO	N/A
Is any LCS recovery:	less than 50%?	___	[✓]	___
	between 50% and 79%?	___	[✓]	___
	between 121% and 150%?	___	[✓]	___
	greater than 150%?	___	[✓]	___

ACTION: Less than 50%, reject (red-line) all data; between 50% and 79%, flag all associated data as estimated (J); between 121% and 150%, flag all positive (not flagged with a "U") results as estimated; greater than 150%, reject all positive results.

.1.19.3 Solid LCS

NOTE: 1. If "Found" value of LCS is rejectable due to duplicate injections or analytical spike recovery criteria, regardless of LCS recovery, flag the associated data as estimated (J).
2. If IDL of an analyte is equal to or greater than true value of LCS, disregard the "Action" below even though LCS is out of control limits.

	YES	NO	N/A
Is LCS "Found" value higher than the control limits on Form VII?	___	[✓]	___

ACTION: If yes, qualify all associated positive data as estimated.

	YES	NO	N/A
Is LCS "Found" value lower than the Control limits on Form VII?	___	[✓]	___

ACTION: If yes, qualify all associated data as estimated.

		YES	NO	N/A
..1.20	**Form IX (ICP Serial Dilution)** -			
	NOTE: Serial dilution analysis is required only for initial concentrations equal to or greater than 10 x IDL.			
..1.20.1	Was Serial Dilution analysis performed for: each SDG?	[✓]	___	___
	each matrix type?	[✓]	___	___
	each concentration range (i.e. low, med.)?	[✓]	___	___
	ACTION: If no for any of the above, flag as estimated all the positive data ≥ 10xIDLs or ≥ CRDL when 10xIDL ≤ CRDL for which Serial Dilution Analysis was not performed.			
..1.20.2	Was field blank(s) used for Serial Dilution Analysis?	___	[✓]	___
	ACTION: If yes, flag all associated data ≥ 10 x IDL as estimated (J). If 10xIDL ≤ CRDL, flag all data ≥ CRDL.			
..1.20.3	Are results outside control limit flagged with an "E" on Form I's and Form IX when initial concentration on Form IX is equal to 50 times IDL or greater.	[✓]	___	___
	ACTION: If no, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.20.4	Circle on each Form IX all percent difference that are outside the control limits for initial concentrations equal to or greater than 10 x IDLs only.			
	Are any % difference values:			
	> 10%?	Na-H2O V, Ni-Soil ✓	[ ]	___
	≥ 100%?	___	[✓]	___

	YES	NO	N/A

ACTION: Flag as estimated (J) all the associated sample data $\geq$ 10xIDLs (or $\geq$ CRDL when 10xIDL $\leq$ CRDL) for which percent difference is greater than 10% but less than 100%. Reject (red-line) all the associated sample results equal to or greater than 10xIDLs (or $\geq$ CRDL when 10xIDL $\leq$ CRDL) for which PD is greater than or equal to 100%.

Note: Flag or reject on Form I's only the sample results whose associated raw data are $\geq$ 10xIDL (or $\geq$ CRDL when 10xIDL$\leq$ CRDL)

A.1.21 Furnace Atomic Absorbtion (AA) QC Analysis

		YES	NO	N/A
A.1.21.1	Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	✓		
	ACTION: If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.21.2	Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient of Variation (CV) for concentration greater than CRDL?		MBER37 ✓	
	Was a dilution analyzed for sample with analytical spike recovery less than 40%?	✓		
	ACTION: If no for any of the above, flag all the associated data as estimated.			
A.1.21.3	Is *analytical spike recovery outside the control limits (85-115%) for any sample?	✓		
	ACTION: If yes, flag as estimated the affected sample results if the recovery is between 10-84%; if the recovery is between 115-200%, flag the associated positive sample results as estimated; reject the associated sample results if the recovery is less than 10%; reject positive sample results if the recovery is greater than 200%.			

* Analytical spike is not required on the pre-digestion spiked sample.

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.1: Data Assessment - Contract Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
	NOTE: Reject or flag the data only when the affected sample(s) was not subsequently analyzed by Method of Standard Addition.			
A.1.22	**Form VIII (Method of Standard Addition Results)**			
A.1.22.1	Present?	[✓]	___	___
	If no, is any Form I result coded with "S" or a "+"?	___	[ ]	✓
	ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.22.2	Is coefficient of correlation for MSA less than 0.990 for any sample?	___	[✓]	___
	ACTION: If yes, reject (red-line) the affected data.			
A.1.22.3	Was *MSA required for any sample but not performed?	___	[✓]	___
	Is coefficient of correlation for MSA less than 0.995?	___	[✓]	___
	Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?	___	[✓]	___
	ACTION: If yes for any of the above, flag all the associated data as estimated (J).			
A.1.22.4	Was proper quantitation procedure followed correctly as outlined in the SOW on page E-23?	[✓]	___	___
	ACTION: If no, note exception under Contract Problem/Non-Compliance section of the "Data Assessment Narrative", and prepare a separate list.			

* MSA is not required on LCS and prep. blank.

		YES	NO	N/A
.1.23	<u>Dissolved/Total or Inorganic/Total Analytes</u> -			
.1.23.1	Were any analyses performed for dissolved as well as total analytes on the same sample(s).	___	[___]	✓
	Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	___	[___]	✓

<u>NOTE</u>:
1. If yes, prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when dissolved concentration is greater than CRDL as well as total concentration.
2. Apply the following questions only if inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents.
3. At least one preparation blank, ICS, and LCS should be analyzed in each analytical run.

		YES	NO	N/A
.1.23.2	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%?	___	[___]	✓
.1.23.3	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 50%?	___	[___]	✓

<u>ACTION</u>: If more than 10%, flag both dissolved (or inorganic) and total values as estimated (J); if more than 50%, reject (red-line) the data for both values.

A.1.24 <u>Form I (Field Blank)</u> -

(<u>Note: Designate "Field Blank" as such on Form I.)</u>

A.1.24.1 Circle all field blank values on Form I that are greater than CRDL, (or 2 x IDL when IDL > CRDL).

	YES	NO	N/A
Is field blank concentration less than CRDL (or 2 x IDL when IDL > CRDL) for all parameters of associated aqueous and soil samples?	[___]	Hg ✓	___

	YES	NO	N/A
If no, was field blank value already rejected due to other QC criteria?	[ ]	✓	

ACTION: If no, reject (except field blank results) all associated positive sample data less than or equal to five times the field blank value. Reject on Form I's the soil sample results that when converted to ug/L on wet basis are less than or equal to five times the field blank value in ug/L.

A.1.25 Form X, XI, XII (Verification of Instrumental Parameters).

A.1.25.1 Is verification report present for:

	YES	NO	N/A
Instrument Detection Limits (quarterly)?	[✓]		
ICP Interelement Correction Factors (annually)?	[✓]		
ICP Linear Ranges (quarterly)?	[✓]		

ACTION: If no, contact TPO of the lab.

A.1.25.2 Form X (Instrument Detection Limits) - (Note: IDL is not required for Cyanide.)

	YES	NO	N/A
A.1.25.2.1 Are IDLs present for: all the analytes?	[✓]		
all the instruments used?	[✓]		
For both AA and ICP when both are used for the same analyte?	[ ]		✓

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

	YES	NO	N/A
A.1.25.2.2 Is IDL greater than CRDL for any analyte?		[✓]	
If yes, is the concentration on Form I of the sample analyzed on the instrument whose IDL exceeds CRDL, greater than 5 x IDL.	[ ]		✓

	YES	NO	N/A
Action: If no, flag as estimated all values less than five times IDL of the instrument whose IDL exceeds CRDL.			
A.1.25.3 **Form XI (Linear Ranges)**			
A.1.25.3.1 Was any sample result higher than high linear range of ICP.	___	[✓]	___
Was any sample result higher than the highest calibration standard for non-ICP parameters?	✓	[ ]	___
If yes for any of the above, was the sample diluted to obtain the result on Form I?	[✓]	___	___

ACTION: If no, flag the result reported on Form I as estimated(J).

A.1.26 **Percent Solids of Sediments**

A.1.26.1 Are percent solids in sediment(s):

	YES	NO	N/A
< 50%?	___	[✓]	___
< 10%?	___	[✓]	___

ACTION: If yes, qualify as estimated all the results of a sample that has per cent solids between 10%-50% (i.e. moisture content between 50%-90%). Reject all the results of a sample that has per cent solids less than 10% (i.e. moisture content greater than 90%).

NOTE: Reject or flag(J) only the sample results that were not previously rejected or flaged due to other QC criteria.

Site: Universal Wash Case No.: 17902

INORGANIC DATA VALIDATION
SUMMARY SHEETS AND
NARRATIVE REPORT

Prepared by:	Date:	Verified by:	Date:
[signature]	06/26/92		

1 ==

As	Abs. Conc.	Affected Samples ≤ .995	Tl	Abs. Conc.	Affected Samples ≤ .995	Pb	Abs. Conc.	Affected Samples ≤ .995	Se	Abs. Conc.	Affected Samples ≤ .995
		-ok-			Case #			PBS LCSS			~~pt to pt~~ -ok-
0	0		0	0	~~SOILS~~	0	0	MBGR32-35	0	0	PB, LCS
10	.065	WATER	10	.05		5	.016	D, S	5	.021	MBGR25,28
50	4725		20	.080		20	.071		25	2713	36
100	9259		25	.088		25	.087		50	51.82	
			50	.075		50	.176				
Correlation Coefficient			1.00			0.999					

SDG Group

2 ==

As	Abs. Conc.	Affected Samples ≤ .995	Tl	Abs. Conc.	Affected Samples ≤ .995	Pb	Abs. Conc.	Affected Samples ≤ .995	Se	Abs. Conc.	Affected Samples ≤ .995
		~~pt. to pt.~~ ~~ok~~						MSA -			~~pt. to pt.~~ ok
0	0		0	0	LCSW	0	0	MBGR36	0	0	MBGR38,
10	8.84	Soil	10	.015	MBGR2ED, S	5	.016		5	.016	34,35
50	4580		20	.031	28,29,30	20	.073		25	25.24	
100	9240		25	.043		25	.084		50	49.22	
			50	.074		50	.196				
Correlation Coefficient			0.996			0.996					

4 ==

Tl	Abs. Conc.	Affected Samples ≤ .995	Tl (3)	Abs. Conc.	Affected Samples ≤ .995	Pb (3)	Abs. Conc.	Affected Samples ≤ .995	Pb (4)	Abs. Conc.	Affected Samples ≤ .995
		PBW						LCSW			PBW
0	0		0	0	MBGR31,37,38,	0	0	MBGR31,38,	0	0	MBGR25,
10	.020		10	.017	25	3	.012	S, 28-30	3	.011	37, D
20	.040		20	.037		20	.0079		20	.084	
25	.057		25	.046		25	.102		25	.108	
50	.094		50	.057		50	.184		50	.181	
0.998 Correlation Coefficient			0.999			0.998			0.994		

Sn ppb	Spiked Amount	Abs. Conc.	Affected Samples ≤ .995	1 == ③	Hg	Spiked Amount	Abs. Conc.	Affected Samples ≤ .995 2 ==
1st	0	10477		14456	1st	0	6808	
2nd	0.5	47360	PBS, LCS	36799	2nd	0.5	56308	MBGR25, 28-31, 36, 37
3rd	1.0	71982	MBGR32-26	58356	3rd	1.0	88167	D
4th	3	172357	D, S	155503	4th	3	204578	PBW
5th	6	314471	0.9990 correlation coefficient	280430	5th	6	372385	0.998 correlation coefficient

r = 1.00
S

Initial Calibration Correlation Coefficient Summary Sheet

A. The following element(s) in the sample(s) were marked "J" as estimated because the correlation coefficient during instrument calibration was less than 0.995.

Elem.	Sample(s)
Pb	MBGR 25, 37 (but were rejected elsewhere)

B. The following element(s) in the sample(s) would have been marked "J" as estiamted because the correlation coefficient during initial calibration was less than 0.995, however, they were qualified for other criteria.

Elem.	Sample(s)

CRDL SUMMARY SHEET

Furnace = TV±CRDL; ICP = TV±2 CRDL (TV = True Value)

The following analytes in the listed samples were rejected because of CRDL recovery results <50% or >150% (positive data only) and sample results within the specified range (see above).

Element	TV	TV-CRDL	TV+CRDL	%R	Samples Affected
Pb (3,4)	3	0	6	154/234.3	MBGR25,28-31,37,38

The following analytes in the listed samples were marked "J" as estimated because of CRDL recovery between 50 and 79% or between 121 and 150% (positive data only) and sample results within the specified range (see above).

Element	TV	TV-CRDL	TV+CRDL	%R	Samples Affected
Cd (1)	10	0	20	121 (F)	NONE
Cu (1)	50		100	124/122.8	
Mn (1)	30		60	120.9 (F)	
Pb (1)	3		6	68.3	
Cd (2)	10		20	123.3/120.9	MBGR32,34-36
Cu (2)	50		100	130.3 (F)	NONE
Se (2)	5		10	130.8	MBGR34,35

The following analytes in the listed samples would have been qualified because of CRDL recoveries, however they had been previously qualified on the basis of other criteria.

Element	TV	TV-CRDL	TV+CRDL	%R	Samples Affected

2022K

Spike Sample Recovery Summary Form

A. The following analyte(s) in the indicated sample(s) were rejected because the Spike Sample Recoveries were less than 30% for aqueous, 10% for soil, or greater than 150% for aqueous, 200% for soil, and the analyte was detected in the sample. Low spike recoveries may indicate serious matrix effects in the sample leading to low bias results. Extremely high spike recoveries may indicate that false positions or high biases in sample result.

Elem.	Sample(s)

B. The following analyte(s) in the indicated sample(s) were marked as "J" estimated because Spike Sample Recoveries were within the range of 10-74% for soil, 30-74%, for aqeuous, 126-200% for soil, 126-150% for aqueous. The user should be aware that the data may be biased in the direction of the spike recovery.

* this spike was prepped/analyzed close to a week after the samples. The conditions in the lab are not the same since there is such a time lag. Only positive samples were affected.

Elem.	Sample(s)
Sb, Cu, Mn, Ag, Zn	MBGR 32→36
* Hg	MBGR 28, 30, 31

C. The following analyte(s) in the indicated sample(s) would have been qualified due to Spike Recoveries; however they were qualified for other criteria.

Elem.	Rej.	Est.	Sample(s)

0638K

FIELD DUPLICATE WORKSHEET

CASE: 17902

SITE: Universal Waste

REVIEWER: Jce

ORIGINAL SAMPLE NO.: MBGR35 (77.8%)

DUPLICATE SAMPLE NO.: MBGR36 (78.6%)

MATRIX: soil

Analyte	CRDL	Control Limit[1]	Sample(s) Units: mg/kg	Duplicate(D) Units: mg/kg	RPD[2]
Aluminum (Al)	200	40	9620	12100	22.8
Antimony (Sb)	60	12	u	u	-
Arsenic (As)	10	2	13.50	11.60	15.1
Barium (Ba)	200	40	425	269	45.0
Beryllium (Be)	5	1	0.53	0.55	3.7
Cadmium (Cd)	5	1	3.90	2.80	33.8
Calcium (Ca)	5000	1000	15200	17800	15.8
Chromium (Cr)	10	2	36.20	36.90	1.9
Cobalt (Co)	50	10	9.0	11.80	26.9
Copper (Cu)	25	5	177	199	11.7
Iron (Fe)	100	20	44000	88500	67.2
Lead (Pb)	3 5	0.6	1520	630	82.8
Magnesium (Mg)	5000	1000	3090	4750	42.3
Manganese (Mn)	15	3	697	766	9.4
Mercury (Hg)	0.2	0.1	2.0	1.10	58.1
Nickel (Ni)	40	8	39.40	53.50	30.4
Potassium (K)	5000	1000	788	1050	28.5
Selenium (Se)	5	1	1.40	1.00	33.3
Silver (Ag)	10	2	1.00	u	200
Sodium (Na)	5000	1000	206	215	4.3
Thallium (Tl)	10	2	u	u	-
Vanadium (V)	50	10	30.90	39.70	26.2
Zinc (Zn)	20	4	857	488	54.9
Cyanide (CN)	10				

1 Aqueous: RPD>50% or <1*CRDL
Solid: RPD>100% or >2*CRDL

2 $RPD = \frac{|S - D|}{(S+D)/2} \times 100$

NC - RPD not calculable due to value(s) less than IDL.

1416K

FIELD DUPLICATE WORKSHEET

CASE: 17902 ORIGINAL SAMPLE NO.: MBGR25

SITE: Universal Waste DUPLICATE SAMPLE NO.: MBGR38

REVIEWER: JM MATRIX: WATER

Analyte	CRDL	Control Limit[1]	Sample(s) Units: ug/L	Duplicate(D) Units: ug/L	RPD[2]
Aluminum (Al)	200		137	149	8.4
Antimony (Sb)	60		u	u	-
Arsenic (As)	10		u	u	-
Barium (Ba)	200		183	184	0.5
Beryllium (Be)	5		u	u	-
Cadmium (Cd)	5		u	u	-
Calcium (Ca)	5000		116000	115000	0.9
Chromium (Cr)	10		u	u	-
Cobalt (Co)	50		↓	↓	-
Copper (Cu)	25		↓	↓	-
Iron (Fe)	100		48200	47800	0.8
Lead (Pb)	3 ~~5~~		4.7	3.4	32.1
Magnesium (Mg)	5000		18800	18600	1.1
Manganese (Mn)	15		3790	3730	1.6
Mercury (Hg)	0.2		u	u	-
Nickel (Ni)	40		11.0	7.3	40.4
Potassium (K)	5000		651	456	35.2
Selenium (Se)	5		u	u	-
Silver (Ag)	10		u	u	-
Sodium (Na)	5000		17500	17200	1.7
Thallium (Tl)	10		u	u	-
Vanadium (V)	50		u	u	-
Zinc (Zn)	20		15.0	8.6	55.3
Cyanide (CN)	10				

1 Aqueous: RPD>50% or <1*CRDL
Solid: RPD>100% or >2*CRDL

2 $RPD = \frac{|S - D|}{(S+D)/2} \times 100$

NC - RPD not calculable due to value(s) less than IDL.

1416K

Serial Dilution Summary Sheet

A. The following analyte(s) in the indicated sample(s) were rejected because the Serial Dilution Results that had % Difference(s) greater than 100% and the sample concentration was greater than 10* the IDL in the original undiluted sample.

Elem.	10* IDL	

B. The following analyte(s) in the indicated sample(s) were marked "J" as estimated because the difference between Sample and Serial Dilution Result was between 10-100% and the sample concentration was greater than 10* the IDL in the original sample.

Elem.	CRDL/ 10* IDL	
Na	5000	MBGR 25, 28, 37, 38
Ni	70	MBGR 32 → 36
V	50	MBGR 32 → 36

C. The following analyte(s) in the indicated sample(s) would have been qualified due to Serial Dilution Results; however, they were qualified for other criteria.

Elem.	Rej.	Est.

Field Blank Summary Sheet

A. The following sample elements were rejected because associated blank contamination was greater than 1/5 sample concentration and analyte was detected in the sample:

Sample ID# MBGR29
date sampled 03/09/92
type of blank FB

Element Containing Concentration Greater than 2* IDL

Symb.	Conc.	Symb.	Conc.
NONE			

Affected Samples / Date Sampled

Sample	Elements Rejected	Sample	Elements Rejected

Sample ID# MBGR30
date sampled 03/09/92
type of blank FB

Element Containing Concentration Greater than ~~2* IDL~~ 5X

Symb.	Conc.	Symb.	Conc.
Hg	0.25 => 1.25 ug/L		

Affected Samples / Date Sampled

Sample	Elements Rejected	Sample	Elements Rejected
MBGR32	Hg		
33	–		
34	–		
35	–		
36	–		

Sample ID#
date sampled
type of blank

Element Containing Concentration Greater than 2* IDL

Symb.	Conc.	Symb.	Conc.

Affected Samples / Date Sampled

Sample	Elements Rejected	Sample	Elements Rejected

B. The following sample elements would have been rejected but have been qualified for other criteria:

Element	Sample(s)

REFERENCE # 10
PAGE 191 OF 212

.tle: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Jan. 1992
Number: HW-2
Revision: 11

ase# 17902 Site Universal Waste Matrix: Soil 5
)G# MBGR25 Lab AATS Water 7
ontractor EDPBCO Reviewer JYL Other

.2.1 Validation Flags- The following flags have been applied in red by the data validator and must be considered by the data user.

J- This flag indicates the result qualified as estimated

Red- Line- A red-line drawn through a sample result indicates unusable value. The red-lined data are known to contain significant errors based on documented information and must not be used by the data user.

Fully Usable Data- The results that do not carry "J" or "red-line" are fully usable.

Contractual Qualifiers- The legend of contractual qualifiers applied by the lab on Form I's is found on page B-20 of SOW ILM01.0.

.2.2 The data assessment is given below and on the attached sheets.

All 12 Samples were collected on 03/02/92. There were 2 field blanks, 1 DI-blank, and 2 sets of field duplicates. The blank MBGR29 is associated with the water samples MBGR25, 28, 37, 38 and MBGR30 with the soil samples MBGR 32-36.

Qualifications performed:

(1) Standards- The last Pb run on 03/18/92 18:17 had a correlation coefficient <0.995 when generated by the reviewer; however the laboratory obtained "r" = 0.996.

..2.2 (continuation)

The samples associated with the run would have been qualified but had been rejected elsewhere.
(2) CRDL - There were many elements with recoveries outside limits, but only 3 - Cd, Se, Pb actually affected the samples. The Pb results of the last 2 runs (water samples) were rejected for very high %R. Some soils were estimated for Cd & Se also for only high recoveries.
(3) Spike - Sb, Cu, Mn, Ag, and Zn all showed poor recoveries and all soil samples were estimated. Positive Hg water results were estimated for omitting the spike (see non-compliance)
(4) Duplicates - Laboratory + field duplicates were fine.
(5) Serial Dilution - Water samples whose Na results were >10xIDL and >CRDL were estimated. All the soil samples were estimated for Ni and V (they were >10xIDL and >CRDL) The %D for these 3 elements were >10% but <100%. - rejection wasn't required.
(6) Field Blank - MBGR30 showed a high Hg value (>CRDL) Only sample MBGR32 was affected - the value was rejected (concentration was <5x blank)

.2.2 (continuation)

(7) Furnace - There were many "W" qualifiers applied and were estimated
Pb - MBGR 32, 33, 34 (28 → 31 had been rejected elsewhere
Tl - MBGR 25, 28, 37, 38
Se - MBGR 28, 33, 36.
Sample MBGR 37 - Pb also had the "M" qualifier for %RSD > 20% in both runs. However, due to qualification - rejected elsewhere, it need not be considered here

:tle: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Jan. 1992
Number: HW-2
Revision: 11

HS 7/20/92

.2.3 Contract-Problem/Non-Compliance

• The Hg spike for the water samples was prepped and analyzed close to a week after the other samples. All Hg QC should be prepped &/run with the samples.

• Dilutions not noted on Form I's

MMB/ESAT Rviewer: ______________________ Date: __________
Signature

ontractor Reviewer: ______________________ Date: 06/26/92
Signature

Verified by: ______________________ Date: __________

e: Evaluation of Metals Data for the Contract Laboratory Program
Apendix A.5: CLP Data Assessment Summary Form (Inorganics)

Date: Jan. 1992
Number: HW-2
Revision: 11

CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

of Review: RAS Date: 06/26/92 Case #: 17902

: Universal Waste Lab Name: AATS

ewer's Initials: JR Number of Samples: 7W, 53

	Holding Times	CRDL Calibration	Prep Blank	Field Blank	Inter-ferences	Spike Recovery	Duplicates Lab	Duplicates Field	Detection Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
Analytes Rejected Due to Exceeding Review Criteria:*														
													216	
me AA													–	
nace AA		7											48	7 ⇒ 14.6%
cury				1									12	1 ⇒ 8.3%
al		7											276	8 ⇒ 2.9%
er														
Analytes Flagged as Estimated (J) Due to Exceeding Criteria For:*					"W"									
		4				25					14		216	43 ⇒ 19.9%
me AA													–	
nace AA		2			10								48	12 ⇒ 25%
cury						3							12	3 ⇒ 25%
al		6			10	28					14		276	58 ⇒ 21.0%
ner														

:e:
Asterisk (*) Indicates additional exceedances of review criteria.

rganic Analysis

INORGANIC REGIONAL DATA ASSESSMENT

Region II

17902

AATS

MBGR25

3/90

FYI

SITE Universal Wast

NO. OF SAMPLES/ MATRIX 7w, 5s

REVIEWER (IF NOT ESD) ESPBCO

REVIEWER'S NAME OK

COMPLETION DATE 06/26/92

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CYANIDE
NG TIMES	O	O	O	
RATIONS (CRAD)	X	Z	O	
S	O	O	M	
CATE ANALYSIS			O	
X SPIKE	M		M	
L DILUTION	M			
E VERIFICATION "W"	O	M	O	
QC		O	O	
LL ASSESSMENT	M	M/Z	M	

has no problems/or qualified due to minor problems.
qualified due to major problems.
unacceptable.
lems, but do not affect data.

:

ERN:

RMANCE:

In Reference to Case No(s): 17902

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 06/10/02

Laboratory Name: AATS / SWOK (918)664-0387 ~~(918)~~ 251-2858

Lab Contact: Steve Markham x0545

Region: II

Regional Contact: Julienne

Call Initiated By: ___ Laboratory X Region

In reference to data for the following sample number(s):

MBGR25

Summary of Questions/Issues Discussed:

(1) Need new Form I for MBGR32, also 5, 6 too.
– Incorrect % Solids

Summary of Resolution:

– send fax to (201) 896-5050, c/o Shashi

Signature: Julienne [signature]   Date: 06/10/02

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

In Reference to Case No(s):
17902

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 06/10/92

~~Laboratory~~ Name: EBASCO

~~Lab~~ Contact: Edgar Aguado

Region: II

Regional Contact: Juliene

Call Initiated By: ___ Laboratory X Region

In reference to data for the following sample number(s):

Summary of Questions/Issues Discussed:

(1) 2 field blank taken - which is for GW' & which is for soils?
Not on trip/traffic reports.

Summary of Resolution:

- Don't know will check with sampler when gets back
06/16/92 - left message
06/26/92 - Blank is for soils (MBGR30), MBGR29 = waters.

Signature: Julieene Loffman Date: 06/10/92

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

U. S. EPA - CLP
COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Lab Name: AMERICAN ANALYTICAL   Contract: 68-D1-0024

Lab Code: AATS   Case No.: 17902   SAS No.:   SDG No.: MBGR25

SOW No.: 3/90

EPA Sample No.	Lab Sample ID
MBGR25	899501
MBGR25D	899501D
MBGR25S	899501S
MBGR28	899502
MBGR29	899503
MBGR30	899504
MBGR31	899505
MBGR32	899506
MBGR32D	899506D
MBGR32S	899506S
MBGR33	899507
MBGR34	899508
MBGR35	899509
MBGR36	899510
MBGR37	899511
MBGR38	899512

Reg III
1992
RECEIVED

RECEIVED
APR 06 1992
S & M BRANCH

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES
If yes, were raw data generated before application of background corrections? Yes/No NO

Comments:
THE "E" FLAG FOR WATER FOR SODIUM IS DUE TO THE SERIAL DILUTION PERCENT DIFFERENCE BEING GREATER THAN 10%. THIS INDICATES A POSSIBLE CHEMICAL OR PHYSICAL INTERFERENCE.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: Steve L. Markham   Name: Steve L. Markham

Date: April 2, 1992   Title: Inorganic Program Manager

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

~~002~~
MBGR25
UW-GW01

Lab Name: AMERICAN ANALYTICAL Contract: 68-D1-0024

Lab Code: AATS Case No.: 17902 SAS No.: SDG No.: MBGR25

Matrix (soil/water): WATER Lab Sample ID: 899501

Level (low/med): LOW Date Received: 3/11/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	137.00	B		P
7440-36-0	Antimony	17.00	U		P
7440-38-2	Arsenic	6.00	U		F
7440-39-3	Barium	183.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	116000.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	6.00	U		P
7439-89-6	Iron	48200.00			P
7439-92-1	Lead	~~4.70~~			F
7439-95-4	Magnesium	18800.00			P
7439-96-5	Manganese	3790.00			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	11.00	B		P
7440-09-7	Potassium	651.00	B		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	17500.00		E J	P
7440-28-0	Thallium	2.00	U	W J	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	15.00	B		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

REFERENCE # 10
PAGE 202 OF NO. 216

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
003
MBGR28
UW-GW03

Lab Name: AMERICAN ANALYTICAL   Contract: 68-D1-0024

Lab Code: AATS   Case No.: 17902   SAS No.:   SDG No.: MBGR25

Matrix (soil/water): WATER   Lab Sample ID: 899502

Level (low/med): LOW   Date Received: 3/11/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	188.00	B		P
7440-36-0	Antimony	17.00	U		P
7440-38-2	Arsenic	6.00	U		F
7440-39-3	Barium	1350.00			P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	327000.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	6.00	U		P
7439-89-6	Iron	15200.00			P
7439-92-1	Lead	~~5.40~~		~~W~~	F
7439-95-4	Magnesium	30300.00			P
7439-96-5	Manganese	493.00			P
7439-97-6	Mercury	.81		J	CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	12200.00			P
7782-49-2	Selenium	3.00	U	WJ	F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	24300.00		E J	P
7440-28-0	Thallium	3.40	B	WJ	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	15.50	B		P
	Cyanide				NR

Color Before: COLORLESS   Clarity Before: CLEAR   Texture:

Color After: COLORLESS   Clarity After: CLEAR   Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

004

1

INORGANIC ANALYSIS DATA SHEET

MBGR29
FIELD BLANK

Lab Name: AMERICAN ANALYTICAL Contract: 68-D1-0024

Lab Code: AATS Case No.: 17902 SAS No.: SDG No.: MBGR25

Matrix (soil/water): WATER Lab Sample ID: 899503

Level (low/med): LOW Date Received: 3/11/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	125.00	B		P
7440-36-0	Antimony	17.00	U		P
7440-38-2	Arsenic	6.00	U		F
7440-39-3	Barium	6.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	266.00	U		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	6.00	U		P
7439-89-6	Iron	40.00	U		P
7439-92-1	Lead	~~1.70~~	~~B~~	~~W~~	F
7439-95-4	Magnesium	112.00	U		P
7439-96-5	Manganese	5.00	B		P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	534.00	B		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	6.10	B		P
7440-23-5	Sodium	494.00	B	E	P
7440-28-0	Thallium	2.50	B		F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	13.10	B		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.
005

1
INORGANIC ANALYSIS DATA SHEET

MBGR30
FIELD BLANK

Lab Name: AMERICAN ANALYTICAL   Contract: 68-D1-0024

Lab Code: AATS   Case No.: 17902   SAS No.:   SDG No.: MBGR25

Matrix (soil/water): WATER   Lab Sample ID: 899504

Level (low/med): LOW   Date Received: 3/11/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	134.00	B		P
7440-36-0	Antimony	17.00	U		P
7440-38-2	Arsenic	6.00	U		F
7440-39-3	Barium	6.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	266.00	U		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	6.00	U		P
7439-89-6	Iron	40.20	B		P
7439-92-1	Lead	~~2.90~~	~~B~~	~~W~~	F
7439-95-4	Magnesium	112.00	U		P
7439-96-5	Manganese	4.00	B		P
7439-97-6	Mercury	.25		J	CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	402.00	U		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	534.00	B	E	P
7440-28-0	Thallium	3.30	B		F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	3.30	B		P
	Cyanide				NR

Color Before: COLORLESS   Clarity Before: CLEAR   Texture:

Color After: COLORLESS   Clarity After: CLEAR   Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

006

MBGR31
DI-BLANK

Lab Name: AMERICAN ANALYTICAL Contract: 68-D1-0024

Lab Code: AATS Case No.: 17902 SAS No.: SDG No.: MBGR25

Matrix (soil/water): WATER Lab Sample ID: 899505

Level (low/med): LOW Date Received: 3/11/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	109.00	B		P
7440-36-0	Antimony	17.00	U		P
7440-38-2	Arsenic	6.00	U		F
7440-39-3	Barium	6.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	266.00	U		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	6.00	U		P
7439-89-6	Iron	40.00	U		P
7439-92-1	Lead	~~3.00~~	~~U~~	~~W~~	F
7439-95-4	Magnesium	112.00	U		P
7439-96-5	Manganese	2.90	B		P
7439-97-6	Mercury	.56		J	CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	402.00	U		P
7782-49-2	Selenium	3.00	U	W	F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	440.00	B	E	P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	2.00	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

007

MBGR32

UW-SS01 6/12/92

Lab Name: AMERICAN ANALYTICAL   Contract: 68-D1-0024

Lab Code: AATS   Case No.: 17902   SAS No.:   SDG No.: MBGR25

Matrix (soil/water): SOIL   Lab Sample ID: 899506

Level (low/med): LOW   Date Received: 3/11/92

% Solids: 77.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6220.00		J	P
7440-36-0	Antimony	4.40	U	N J	P
7440-38-2	Arsenic	9.30			F
7440-39-3	Barium	49.90	B		P
7440-41-7	Beryllium	.44	B		P
7440-43-9	Cadmium	.60	B	J	P
7440-70-2	Calcium	8290.00			P
7440-47-3	Chromium	13.30			P
7440-48-4	Cobalt	6.00	B		P
7440-50-8	Copper	53.00		N J	P
7439-89-6	Iron	14800.00		*	P
7439-92-1	Lead	232.00		W J	F
7439-95-4	Magnesium	4070.00			P
7439-96-5	Manganese	265.00		N J	P
7439-97-6	Mercury	~~.14~~			CV
7440-02-0	Nickel	24.70		J	P
7440-09-7	Potassium	1070.00	B		P
7782-49-2	Selenium	.78	U	W	F
7440-22-4	Silver	.52	U	N J	P
7440-23-5	Sodium	186.00	B		P
7440-28-0	Thallium	.52	U	W	F
7440-62-2	Vanadium	15.90		J	P
7440-66-6	Zinc	111.00		N J	P
	Cyanide				NR

Color Before: BLACK   Clarity Before: Texture: MEDIUM

Color After: COLORLESS   Clarity After: Artifacts:

Comments:

Pb=100x dilution

RECEIVED JUN 15 1992

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1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
~~008~~
MBGR33
UW-SS02

Lab Name: AMERICAN ANALYTICAL Contract: 68-D1-0024

Lab Code: AATS Case No.: 17902 SAS No.: SDG No.: MBGR25

Matrix (soil/water): SOIL Lab Sample ID: 899507

Level (low/med): LOW Date Received: 3/11/92

% Solids: 85.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13900.00			P
7440-36-0	Antimony	4.00	U	N J	P
7440-38-2	Arsenic	10.70			F
7440-39-3	Barium	169.00			P
7440-41-7	Beryllium	.54	B		P
7440-43-9	Cadmium	6.00			P
7440-70-2	Calcium	51500.00			P
7440-47-3	Chromium	68.30			P
7440-48-4	Cobalt	14.90			P
7440-50-8	Copper	191.00		N J	P
7439-89-6	Iron	40900.00		*	P
7439-92-1	Lead	280.00		W J	F
7439-95-4	Magnesium	8810.00			P
7439-96-5	Manganese	849.00		N J	P
7439-97-6	Mercury	3.10			CV
7440-02-0	Nickel	160.00		J	P
7440-09-7	Potassium	1850.00			P
7782-49-2	Selenium	.70	U	W J	F
7440-22-4	Silver	1.70	B	N J	P
7440-23-5	Sodium	449.00	B		P
7440-28-0	Thallium	.47	U		F
7440-62-2	Vanadium	29.70		J	P
7440-66-6	Zinc	472.00		N J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: COLORLESS Clarity After: Artifacts:

Comments:

Pb= 100x dilution

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

009

MBGR34

UW-SS03

Lab Name: AMERICAN ANALYTICAL Contract: 68-D1-0024

Lab Code: AATS Case No.: 17902 SAS No.: SDG No.: MBGR25

Matrix (soil/water): SOIL Lab Sample ID: 899508

Level (low/med): LOW Date Received: 3/11/92

% Solids: 83.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9280.00			P
7440-36-0	Antimony	4.10	U	N J	P
7440-38-2	Arsenic	14.70			F
7440-39-3	Barium	142.00			P
7440-41-7	Beryllium	.57	B		P
7440-43-9	Cadmium	3.40		J	P
7440-70-2	Calcium	38600.00			P
7440-47-3	Chromium	63.60			P
7440-48-4	Cobalt	21.70			P
7440-50-8	Copper	1660.00		N J	P
7439-89-6	Iron	67300.00		*	P
7439-92-1	Lead	263.00		W J	F
7439-95-4	Magnesium	5420.00			P
7439-96-5	Manganese	905.00		N J	P
7439-97-6	Mercury	.12	U		CV
7440-02-0	Nickel	118.00		J	P
7440-09-7	Potassium	2000.00			P
7782-49-2	Selenium	.74	B	J	F
7440-22-4	Silver	.79	B	N J	P
7440-23-5	Sodium	228.00	B		P
7440-28-0	Thallium	.48	U		F
7440-62-2	Vanadium	88.10		J	P
7440-66-6	Zinc	434.00		N J	P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:
Pb = 100 x dilution

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
010
MBGR35
UW-SS04

Lab Name: AMERICAN ANALYTICAL   Contract: 68-D1-0024

Lab Code: AATS   Case No.: 17902   SAS No.:   SDG No.: MBGR25

Matrix (soil/water): SOIL   Lab Sample ID: 899509

Level (low/med): LOW   Date Received: 3/11/92

% Solids: 77.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9620.00			P
7440-36-0	Antimony	4.40	U	N J	P
7440-38-2	Arsenic	13.50			F
7440-39-3	Barium	425.00			P
7440-41-7	Beryllium	.53	B		P
7440-43-9	Cadmium	3.90		J	P
7440-70-2	Calcium	15200.00			P
7440-47-3	Chromium	36.20			P
7440-48-4	Cobalt	9.00	B		P
7440-50-8	Copper	177.00		N J	P
7439-89-6	Iron	44000.00		*	P
7439-92-1	Lead	1520.00			F
7439-95-4	Magnesium	3090.00			P
7439-96-5	Manganese	697.00		N J	P
7439-97-6	Mercury	2.00			CV
7440-02-0	Nickel	39.40		J	P
7440-09-7	Potassium	788.00	B		P
7782-49-2	Selenium	1.40		J	F
7440-22-4	Silver	1.00	B	N J	P
7440-23-5	Sodium	206.00	B		P
7440-28-0	Thallium	.51	U		F
7440-62-2	Vanadium	30.50		J	P
7440-66-6	Zinc	857.00		N J	P
	Cyanide				NR

Color Before: BROWN   Clarity Before: Texture: COARSE

Color After: COLORLESS   Clarity After: Artifacts:

Comments:

Pb - 200x dilution

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
011
MBGR36
Dup UW-SS04

Name: AMERICAN ANALYTICAL Contract: 68-D1-0024

Code: AATS Case No.: 17902 SAS No.: SDG No.: MBGR25

ix (soil/water): SOIL Lab Sample ID: 899510

l (low/med): LOW Date Received: 3/11/92

lids: 78.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12100.00			P
7440-36-0	Antimony	4.30	U	N J	P
7440-38-2	Arsenic	11.60			F
7440-39-3	Barium	269.00			P
7440-41-7	Beryllium	.55	B		P
7440-43-9	Cadmium	2.80		J	P
7440-70-2	Calcium	17800.00			P
7440-47-3	Chromium	36.90			P
7440-48-4	Cobalt	11.80	B		P
7440-50-8	Copper	199.00		N J	P
7439-89-6	Iron	88500.00		*	P
7439-92-1	Lead	630.00		S	F
7439-95-4	Magnesium	4750.00			P
7439-96-5	Manganese	766.00		N J	P
7439-97-6	Mercury	1.10			CV
7440-02-0	Nickel	53.50		J	P
7440-09-7	Potassium	1050.00	B		P
7782-49-2	Selenium	1.00	B	W J	F
7440-22-4	Silver	.51	U	N J	P
7440-23-5	Sodium	215.00	B		P
7440-28-0	Thallium	.51	U		F
7440-62-2	Vanadium	39.70		J	P
7440-66-6	Zinc	488.00		N J	P
	Cyanide				NR

or Before: BROWN Clarity Before: Texture: COARSE

or After: COLORLESS Clarity After: Artifacts:

ments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

012

MBGR37

UW-GW04

Lab Name: AMERICAN ANALYTICAL   Contract: 68-D1-0024

Lab Code: AATS   Case No.: 17902   SAS No.:   SDG No.: MBGR25

Matrix (soil/water): WATER   Lab Sample ID: 899511

Level (low/med): LOW   Date Received: 3/11/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	99.20	B		P
7440-36-0	Antimony	17.00	U		P
7440-38-2	Arsenic	9.50	B		F
7440-39-3	Barium	929.00			P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	223000.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	6.00	U		P
7439-89-6	Iron	21700.00			P
7439-92-1	Lead	~~5.20~~		~~M~~	F
7439-95-4	Magnesium	39300.00			P
7439-96-5	Manganese	2290.00			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1900.00	B		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	52500.00		E J	P
7440-28-0	Thallium	2.00	U	W J	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	6.60	B		P
	Cyanide				NR

Color Before: COLORLESS   Clarity Before: CLEAR   Texture:

Color After: COLORLESS   Clarity After: CLEAR   Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.
013

1
INORGANIC ANALYSIS DATA SHEET

MBGR38
Dup UW-GW01

Lab Name: AMERICAN ANALYTICAL Contract: 68-D1-0024

Lab Code: AATS Case No.: 17902 SAS No.: SDG No.: MBGR25

Matrix (soil/water): WATER Lab Sample ID: 899512

Level (low/med): LOW Date Received: 3/11/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	149.00	B		P
7440-36-0	Antimony	17.00	U		P
7440-38-2	Arsenic	6.00	U		F
7440-39-3	Barium	184.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	115000.00			P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	6.00	U		P
7439-89-6	Iron	47800.00			P
7439-92-1	Lead	~~[illegible]~~			F
7439-95-4	Magnesium	18600.00			P
7439-96-5	Manganese	3730.00			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	7.30	B		P
7440-09-7	Potassium	456.00	B		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	17200.00		E J	P
7440-28-0	Thallium	2.00	U	W J	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	8.50	B		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

REFERENCE 11

CONFIDENTIAL

OMB Approval Number: 2050-0095
Approved for Use Through: 4/95

PA-Score

PA Scoresheets

Site Name: Universal Waste, Inc.
CERCLIS ID No.: NYD980509335
Street Address: Corner Leyland Ave. and Wurtz Ave.
City/State/Zip: Utica, NY 13502

Investigator: Daniel E. White
Agency/Organization: Ebasco Environmental
Street Address: 160 Chubb Avenue
City/State: Lyndhurst, NJ

Date: 9/22/92

CONFIDENTIAL

PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

WASTE CHARACTERISTICS

Waste Characteristics (WC) Calculations:

1 Stained Soil	Contaminated soil	Ref: 1,2	WQ value	maximum
Area	1.20E+05 sq ft		3.53E+00	3.53E+00

An area of stained soil approximately 600 feet by 200 feet was observed during the site inspection. Alledgely PCB oil and Trichloroethylene (TCE) were spilled during decomissioning of transformers and degreasing operations. The area is given by:

600 feet x 200 feet = 120,000 square feet

Ref: 1

** Only First WC Page Is Printed **	Waste Characteristics Score: WC = 18

CONFIDENTIAL

PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

Ground Water Pathway Criteria List
Suspected Release

Are sources poorly contained? (y/n/u)	Y
Is the source a type likely to contribute to ground water contamination (e.g., wet lagoon)? (y/n/u)	Y
Is waste quantity particularly large? (y/n/u)	N
Is precipitation heavy? (y/n/u)	Y
Is the infiltration rate high? (y/n/u)	N
Is the site located in an area of karst terrain? (y/n)	N
Is the subsurface highly permeable or conductive? (y/n/u)	U
Is drinking water drawn from a shallow aquifer? (y/n/u)	N
Are suspected contaminants highly mobile in ground water? (y/n/u)	Y
Does analytical or circumstantial evidence suggest ground water contamination? (y/n/u)	Y

Other criteria? (y/n) Y Analytical data

SUSPECTED RELEASE? (y/n) Y

Summarize the rationale for Suspected Release:

Numerous contaminants were detected in surface soils on site in concentrations greater than three times background levels. Several inorganic compounds were detected in site groundwater. Barium, arsenic, mercury, and thallium weres found at levels greater than three times upgradient or background levels. Volatile organic compounds were also detected including chloethane and 2-hexanone at levels below background. Semi-volatile organic compounds were also detected including dimethylphthalate and benzo(k)flourathene.

Ref: 1

CONFIDENTIAL

Ground Water Pathway Criteria List
Primary Targets

Is any drinking water well nearby? (y/n/u)	N
Has any nearby drinking water well been closed? (y/n/u)	N
Has any nearby drinking water well user reported foul-testing or foul-smelling water? (y/n/u)	N
Does any nearby well have a large drawdown/high production rate? (y/n/u)	N
Is any drinking water well located between the site and other wells that are suspected to be exposed to a hazardous substance? (y/n/u)	N
Does analytical or circumstantial evidence suggest contamination at a drinking water well? (y/n/u)	N
Does any drinking water well warrant sampling? (y/n/u)	N
Other criteria? (y/n) N	
PRIMARY TARGET(S) IDENTIFIED? (y/n)	N

Summarize the rationale for Primary Targets:

Ref: 6,7

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PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

GROUND WATER PATHWAY SCORESHEETS

Pathway Characteristics

		Ref.
Do you suspect a release? (y/n)	Yes	
Is the site located in karst terrain? (y/n)	No	17
Depth to aquifer (feet):	5	3
Distance to the nearest drinking water well (feet):	9500	6,7

LIKELIHOOD OF RELEASE	Suspected Release	No Suspected Release	References
1. SUSPECTED RELEASE	550		
2. NO SUSPECTED RELEASE		0	
LR =	550	0	

Targets

TARGETS	Suspected Release	No Suspected Release	References
3. PRIMARY TARGET POPULATION 0 person(s)	0		
4. SECONDARY TARGET POPULATION Are any wells part of a blended system? (y/n) N	12	0	
5. NEAREST WELL	5	0	
6. WELLHEAD PROTECTION AREA None within 4 Miles	0	0	
7. RESOURCES	5	0	
T =	22	0	

WASTE CHARACTERISTICS

	Suspected Release	No Suspected Release
WC =	18	0

GROUND WATER PATHWAY SCORE: 3

Ground Water Target Populations

Primary Target Population Drinking Water Well ID	Dist. (miles)	Population Served	Reference	Value
None				
*** Note : Maximum of 5 Wells Are Printed ***			Total	

Secondary Target Population Distance Categories	Population Served	Reference	Value
0 to 1/4 mile	0	15	0
Greater than 1/4 to 1/2 mile	0	15	0
Greater than 1/2 to 1 mile	0	15	0
Greater than 1 to 2 miles	2	15	1
Greater than 2 to 3 miles	803	15	7
Greater than 3 to 4 miles	966	15	4
		Total	12

Apportionment Documentation for a Blended System

There are no wells within a 4-mile radius of the site that are part of a blended system.

Ref: 6

Surface Water Pathway Criteria List
Suspected Release

Is surface water nearby? (y/n/u)	Y
Is waste quantity particularly large? (y/n/u)	N
Is the drainage area large? (y/n/u)	Y
Is rainfall heavy? (y/n/u)	Y
Is the infiltration rate low? (y/n/u)	Y
Are sources poorly contained or prone to runoff or flooding? (y/n/u)	Y
Is a runoff route well defined(e.g.ditch/channel to surf.water)? (y/n/u)	N
Is vegetation stressed along the probable runoff path? (y/n/u)	N
Are sediments or water unnaturally discolored? (y/n/u)	U
Is wildlife unnaturally absent? (y/n/u)	N
Has deposition of waste into surface water been observed? (y/n/u)	N
Is ground water discharge to surface water likely? (y/n/u)	Y
Does analytical/circumstantial evidence suggest S.W. contam? (y/n/u)	Y

Other criteria? (y/n) Y Contaminated Groundwater

SUSPECTED RELEASE? (y/n) Y

Summarize the rationale for Suspected Release:

Contaminants have been detected in surface soil samples on site. These include PCBs, inorganics and organic compounds. The site is located in a topographic low and is prone to urban flooding during periods of heavy precipitation. Soils on the site consist of clay and silt and most likely have low permeabilities. This assumption is supported by the presence of large areas of standing water on site. Contaminants may be carried by runoff to a drainage ditch to the east of the site. Runoff flows through the ditch to the Mohawk River. In addition, site shallow groundwater, which discharges to the Mohawk River, has been found to be contaminated. The PPE is approximately 1,000 feet from the suspected area of contamination.

Ref: 1,2,3,7

Surface Water Pathway Criteria List
Primary Targets

Is any target nearby? (y/n/u) If yes: Y
- N Drinking water intake
- Y Fishery
- Y Sensitive environment

Has any intake, fishery, or recreational area been closed? (y/n/u) N

Does analytical or circumstantial evidence suggest surface water contamination at or downstream of a target? (y/n/u) Y

Does any target warrant sampling? (y/n/u) If yes: Y
- N Drinking water intake
- Y Fishery
- Y Sensitive environment

Other criteria? (y/n) N

PRIMARY INTAKE(S) IDENTIFIED? (y/n) N

Summarize the rationale for Primary Intakes:

No surface water intakes are located within 15 miles downstream of the site.

Ref: 6
continued --------

ontinued -------

)ther criteria? (y/n) Y Close proximity of fishery

PRIMARY FISHERY(IES) IDENTIFIED? (y/n) Y

ımmarize the rationale for Primary Fisheries:

ontaminants, including inorganics, PCBs, and numerous organic compounds have been detected in surface soils on site. The site is ocated in a topographic low and is prone to urban flooding. ontaminated soil may be carried by runoff to a drainage ditch to the east of the site. The contaminants can be carried through the ditch to the Mohawk River. Site shallow groundwater, which ischarges to the Mohawk River, has been found to be contaminated with organic and inorganic compounds. The Mohawk River is classified by the NYSDEC as a fishery. The PPE is approximately 1,000 feet from he suspected area of contamination.

ef: 1,2,3,11

her criteria? (y/n) Y Close proximity to wetlands and fishery

PRIMARY SENSITIVE ENVIRONMENT(S) IDENTIFIED? (y/n) Y

marize the rationale for Primary Sensitive Environments:

Contaminants, including inorganic, PCBs, and numerous organic ompounds have been detected in surface soils on site. Soils on ite consist of clay and silt and probably have low permeabilities, as evidenced by large areas of standing water on site. The site is located in a topographic low and is prone to urban flooding during eriods of heavy precipitation. Contaminated soil may be carried by runoff to a drainage ditch to the east of the site and then to the Mohawk River. The wetlands area is located immediately downstream f the probable point of entry (PPE) of surface water in the Mohawk iver. The Mohawk River is a state-regulated area for the protection of aquatic life.

Ref: 1,2,3,5,7,11

PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

SURFACE WATER PATHWAY SCORESHEETS

Pathway Characteristics		Ref.
Do you suspect a release? (y/n)	Yes	
Distance to surface water (feet):	1000	1,7
Flood frequency (years):	100	16
What is the downstream distance (miles) to:		
a. the nearest drinking water intake?	N.A.	6
b. the nearest fishery?	0.2	11
c. the nearest sensitive environment?	0.2	11

LIKELIHOOD OF RELEASE	Suspected Release	No Suspected Release	References
1. SUSPECTED RELEASE	550		
2. NO SUSPECTED RELEASE		0	
LR =	550	0	

Drinking Water Threat Targets

TARGETS	Suspected Release	No Suspected Release	References
3. Determine the water body type, flow (if applicable), and number of people served by each drinking water intake.			
4. PRIMARY TARGET POPULATION 0 person(s)	0		
5. SECONDARY TARGET POPULATION Are any intakes part of a blended system? (y/n): N	0	0	
6. NEAREST INTAKE	0	0	
7. RESOURCES	5	0	
T =	5	0	

Drinking Water Threat Target Populations

Intake Name	Primary (y/n)	Water Body Type/Flow	Population Served	Ref.	Value
None					

Total Primary Target Population Value	0
Total Secondary Target Population Value	0

*** Note : Maximum of 6 Intakes Are Printed ***

Apportionment Documentation for a Blended System

PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

Human Food Chain Threat Targets

TARGETS	Suspected Release	No Suspected Release	References
8. Determine the water body type and flow for each fishery within the target limit.			
9. PRIMARY FISHERIES	300		
10. SECONDARY FISHERIES	0	0	
T =	300	0	

Human Food Chain Threat Targets

Fishery Name	Primary (y/n)	Water Body Type/Flow	Ref.	Value
1 Mohawk River	Y	primary fishery	11	300

Total Primary Fisheries Value	300
Total Secondary Fisheries Value	0

*** Note : Maximum of 6 Fisheries Are Printed ***

Environmental Threat Targets

TARGETS	Suspected Release	No Suspected Release	References
11. Determine the water body type and flow (if applicable) for each sensitive environment.			
12. PRIMARY SENSITIVE ENVIRONMENTS	300		
13. SECONDARY SENSITIVE ENVIRONS.	0	0	
T =	300	0	

Environmental Threat Targets

Sensitive Environment Name	Primary (y/n)	Water Body Type/Flow	Ref.	Value
1 Wetlands (UE-10)	Y	primary sens. envir.	11	300
2 Mohawk River	Y	primary sens. envir.	11	300
3 Wetlan UE-11	N	>10000 cfs	11	0
4 Wetland UE-12	N	>10000 cfs	11	0
5 Wetland IN-4	N	>10000 cfs	11	0
6 Wetland IN-9	N	>10000 cfs	11	0

Total Primary Sensitive Environments Value	300
Total Secondary Sensitive Environments Value	0

*** Note: Maximum of 6 Sensitive Environments Are Printed ***

PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

Surface Water Pathway Threat Scores

Threat	Likelihood of Release(LR) Score	Targets(T) Score	Pathway Waste Characteristics (WC) Score	Threat Score LR x T x WC / 82,500
Drinking Water	550	5	32	1
Human Food Chain	550	300	32	64
Environmental	550	300	32	60

SURFACE WATER PATHWAY SCORE: 100

Soil Exposure Pathway Criteria List
Resident Population

Is any residence, school, or daycare facility on or within 200 feet of an area of suspected contamination? (y/n/u)	N
Is any residence, school, or daycare facility located on adjacent land previously owned or leased by the site owner/operator? (y/n/u)	N
Is there a migration route that might spread hazardous substances near residences, schools, or daycare facilities? (y/n/u)	N
Have onsite or adjacent residents or students reported adverse health effects, exclusive of apparent drinking water or air contamination problems? (y/n/u)	N
Does any neighboring property warrant sampling? (y/n/u)	Y

Other criteria? (y/n) N

RESIDENT POPULATION IDENTIFIED? (y/n) N

Summarize the rationale for Resident Population:

The nearest residence is located approximately 1,800 feet from the suspected area of contamination.

Ref: 1

PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

SOIL EXPOSURE PATHWAY SCORESHEETS

Pathway Characteristics		Ref.
Do any people live on or within 200 ft of areas of suspected contamination? (y/n)	No	1,7
Do any people attend school or daycare on or within 200 ft of areas of suspected contamination? (y/n)	No	1,7
Is the facility active? (y/n):	Yes	1

LIKELIHOOD OF EXPOSURE	Suspected Contamination	References
1. SUSPECTED CONTAMINATION LE =	550	

Targets

2. RESIDENT POPULATION 0 resident(s) 0 school/daycare student(s)	0	 1,7 1,7
3. RESIDENT INDIVIDUAL	0	
4. WORKERS 1 - 100	5	1
5. TERRES. SENSITIVE ENVIRONMENTS	0	
6. RESOURCES	5	
T =	10	

WASTE CHARACTERISTICS

WC = 18

RESIDENT POPULATION THREAT SCORE: 1

NEARBY POPULATION THREAT SCORE: 2

Population Within 1 Mile: 10,001 - 50,000

SOIL EXPOSURE PATHWAY SCORE: 3

Soil Exposure Pathway Terrestrial Sensitive Environments

Terrestrial Sensitive Environment Name	Reference	Value
None		
Total Terrestrial Sensitive Environments Value		

*** Note : Maximum of 7 Sensitive Environments Are Printed ***

Air Pathway Criteria List Suspected Release	
Are odors currently reported? (y/n/u)	N
Has release of a hazardous substance to the air been directly observed? (y/n/u)	N
Are there reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air? (y/n/u)	N
Does analytical/circumstantial evidence suggest release to air? (y/n/u)	N
Other criteria? (y/n) Y Air monitoring during site inspection.	
SUSPECTED RELEASE? (y/n)	N

Summarize the rationale for Suspected Release:

Real-time air monitoring was conducted during the site inspection. and no readings above background levels were recorded. No releases to air have been reported.

Ref: 1,2

AIR PATHWAY SCORESHEETS

Pathway Characteristics

		Ref.
Do you suspect a release? (y/n)	No	
Distance to the nearest individual (feet):	1800	1

LIKELIHOOD OF RELEASE	Suspected Release	No Suspected Release	References
1. SUSPECTED RELEASE	0		
2. NO SUSPECTED RELEASE		500	
LR =	0	500	

Targets

TARGETS	Suspected Release	No Suspected Release	References
3. PRIMARY TARGET POPULATION 0 person(s)	0		
4. SECONDARY TARGET POPULATION	0	80	
5. NEAREST INDIVIDUAL	0	20	
6. PRIMARY SENSITIVE ENVIRONS.	0		
7. SECONDARY SENSITIVE ENVIRONS.	0	1	
8. RESOURCES	0	5	
T =	0	106	

WASTE CHARACTERISTICS

WC =	0	18

AIR PATHWAY SCORE: 12

PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

Air Pathway Secondary Target Populations

Distance Categories	Population	References	Value
Onsite	20	1	2
Greater than 0 to 1/4 mile	845	14	13
Greater than 1/4 to 1/2 mile	2540	14	9
Greater than 1/2 to 1 mile	10159	14	26
Greater than 1 to 2 miles	35582	14	27
Greater than 2 to 3 miles	9118	14	1
Greater than 3 to 4 miles	16987	14	2
		Total Secondary Population Value	80

PA-Score 2.0 Scoresheets
Universal Waste, Inc. - 09/26/92

Air Pathway Primary Sensitive Environments

Sensitive Environment Name	Reference	Value
None		

Total Primary Sensitive Environments Value

*** Note : Maximum of 7 Sensitive Environments Are Printed***

Air Pathway Secondary Sensitive Environments

Sensitive Environment Name	Distance	Reference	Value
1 Wetlands (UE-10)	0 - 1/4	11	0.6
2 Wetlands (UE-6)	>1/4-1/2	11	0.1
3 Mohawk River	0 - 1/4	11	0.1

Total Secondary Sensitive Environments Value: 1

SITE SCORE CALCULATION	SCORE
GROUND WATER PATHWAY SCORE:	3
SURFACE WATER PATHWAY SCORE:	100
SOIL EXPOSURE PATHWAY SCORE:	3
AIR PATHWAY SCORE:	12
SITE SCORE:	50

SUMMARY

1. Is there a high possibility of a threat to any nearby drinking water well(s) by migration of a hazardous substance in ground water? No

   If yes, identify the well(s).

   If yes, how many people are served by the threatened well(s)? 0

2. Is there a high possibility of a threat to any of the following by hazardous substance migration in surface water?
   - A. Drinking water intake — No
   - B. Fishery — Yes
   - C. Sensitive environment (wetland, critical habitat, others) — Yes

   If yes, identity the target(s).
   Mohawk River
   Wetland UE-10

3. Is there a high possibility of an area of surficial contamination within 200 feet of any residence, school, or daycare facility? No

   If yes, identify the properties and estimate the associated population(s)

4. Are there public health concerns at this site that are not addressed by PA scoring considerations? No

   If yes, explain:

REFERENCE 12

Water Resources of the Utica-Rome Area New York

By H. N. HALBERG, O. P. HUNT, *and* F. H. PAUSZEK

WATER RESOURCES OF INDUSTRIAL AREAS

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1499-C

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1962

UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington 25, D.C.

CONTENTS

ILLUSTRATIONS

[Plates are in pocket]

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TABLES

WATER RESOURCES OF INDUSTRIAL AREAS

WATER RESOURCES OF THE UTICA-ROME AREA, NEW YORK

By H. N. Halberg, O. P. Hunt, and F. H. Pauszek

ABSTRACT

The Utica-Rome area is along the Mohawk River and New York State Erie (Barge) Canal about midway between Lake Ontario and Albany. It encompasses about 390 square miles centered around the industrial cities of Utica and Rome.

The Mohawk River, its tributary West Canada Creek, and a system of reservoirs and diversions to maintain the flow in the barge-canal system, assure an ample water supply for the foreseeable needs of the area. The water from these sources is generally of good chemical quality requiring little treatment, although that from the Mohawk River is only fair and may require some treatment for sensitive industrial processes. Additional surface water is available from smaller streams in the area, particularly Oriskany and Sauquoit Creeks, but the water from these sources is hard, and has a dissolved-solids content of more than 250 ppm (parts per million). Ground water is available in moderate quantities from unconsolidated sand and gravel deposits in the river valleys and buried bedrock channels, and in small quantities from bedrock formations and less permeable unconsolidated deposits. The quality of water from sand and gravel, and bedrock ranges from good to poor. However, where necessary, the quality can be improved with treatment.

The Mohawk River is the source of the largest quantity of water in the area. The flow of the stream below Delta Dam equals or exceeds 108 mgd (million gallons per day) 90 percent of the time, and at Little Falls it equals or exceeds 560 mgd 90 percent of the time. The flow between these two points is increased by additions from Oriskany, Sauquoit, and West Canada Creeks and from many smaller tributary streams. The flow is also increased by diversions from outside the area, from the Black and Chenango Rivers and West Canada Creek for improvement of navigation in the Erie (Barge) Canal, and from West Canada and East Branch Fish Creeks for the public supplies of Utica and Rome. Much of the public-supply water eventually reaches the river by way of sewerage and industrial waste-disposal systems. The total diversion from these sources averages more than 92 mgd. An estimated 18.5 mgd is withdrawn from the Mohawk River by industry, mostly for nonconsumptive uses.

Floods in the Utica-Rome area are not a frequent problem owing to the use of regulatory measures. The major streams fluctuate through a narrow range in stage and generally only a narrow strip along the streams is subject to flooding.

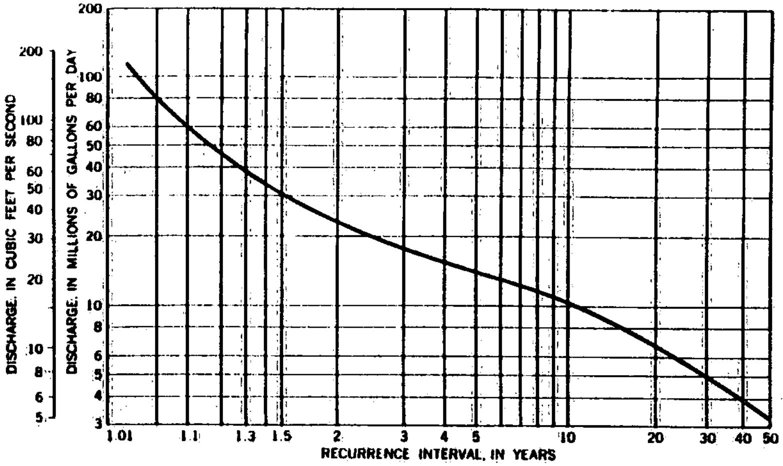

FIGURE 9.—Magnitude and frequency of observed annual consecutive 7-day low flows, East Branch Fish Creek at Taberg, 1923–58.

and Sauquoit Creeks. It is available in small supply from the bedrock formations and from the veneer of ground moraine overlying the bedrock in the upland areas, although it may be hard. Ground water also serves to maintain the low-water flow of the streams and conversely may be recharged by adjacent streams during floods or periods of heavy ground-water pumpage.

MOHAWK RIVER LOWLAND

The Mohawk River lowland as described in this report is the area within the Mohawk River valley that is underlain by glaciofluvial deposits and by lacustrine and alluvial deposits (pl. 1). The land surface is mainly valley bottom or flood plain and adjacent terraces. It is nearly level and has a maximum relief of about 200 feet, the outer limit of the lowland being at an altitude of about 600 feet. Within the lowland, moderate to large quantities of ground water can be obtained from sand and gravel deposits (table 5). These deposits make up the greater part of the unconsolidated material underlying the extensive sand plain north of Rome, the valley of Ninemile Creek below Holland Patent, and the terraces bordering the Mohawk River plain from west of Rome to Frankfort. They also are interspersed with extensive beds of clay and silt in the fill of the Mohawk River plain.

Data upon which to base reliable appraisals of yield of ground water are lacking for this area because many wells for which records are available were drilled for domestic users requiring only small supplies and the wells were not constructed or developed for maximum yield.

TABLE 5.—*Geologic formations in the Utica-Rome area and their water-bearing properties (modified from Dale, 1953 and Kay, 1953)*

Age: System	Age: Series	Geologic unit	Thickness (feet)	Average depth of wells (feet)	Range in yield of wells (gpm)	Average yield of wells (gpm)	Character of material and water-bearing properties
Quaternary	Recent and Pleistocene	Fine-grained glaciofluvial, lacustrine and alluvial deposits	70–150	68	2–40	11	Clay, silt, and sand formed in temporary lakes or by recent streams. Poor aquifer generally, but sand beds may yield moderate supplies, especially where recharged by nearby streams.
	Pleistocene	Medium to coarse-grained glaciofluvial and deltaic deposits	10–140	67	10–290	80	Interbedded and interlensing sand and gravel formed by sorting action of glacial melt water. Most productive aquifer in area, especially where recharged by nearby streams. Furnishes good-quality water, suitable for most purposes.
		Ground moraine (till)	1–40	10	1/2–10	3	Heterogeneous mixture ranging in grain size from clay to boulders. Found mostly in the uplands. Poor aquifer but furnishes enough water from dug wells for domestic use.
Silurian	Cayuga	Manlius limestone	150+	------	------	------	Dark blue fossiliferous limestone having dark shale partings. Furnishes small to moderate quantities of moderately hard water.
		Salina group: Bertie limestone	30	100	0–40	7	Drab-colored, thin-bedded, clayey limestone. Furnishes small to moderate quantities of moderately hard water.
		Salina group: Camillus shale	200–300				Mottled red and green, drab-colored shale and thin-bedded limestone zones. Yields sufficient water for domestic use but quality is very poor.
		Salina group: Vernon shale	300				Purplish-red shale spotted with green, and thin beds of green shale and limestone. Yields sufficient water for domestic use but quality is very poor.
	Niagara	Lockport dolomite	80	86	0–8	2½	Dark-colored nearly black dolomite and shale. Furnishes small quantities of poor-quality water.
		Clinton group	270	67	½–35	9½	Green and gray shale and sandstone, a few dolomite and conglomerate beds, and several thin beds of fossiliferous red oolitic hematite (iron ore). Yields sufficient water for domestic purposes. Water may be hard in some places.
		Oneida conglomerate	29	------	------	------	Quartz-pebble conglomerate and crossbedded sandstone, pyritiferous. Relatively unimportant aquifer owing to thinness.
Ordovician	Upper Ordovician	Frankfort shale (includes Pulaski shale)	400–500	114	½–20	5	Gray sandy shale, thin beds of dolomite and calcareous sandstone. Furnishes small to moderate quantities of good-quality water.
		Utica shale	300–400	127	½–48	7½	Black and gray carbonaceous shale containing calcareous argillites. Reliable source of small to moderate quantities of water. Water obtained from openings along joints and bedding planes. Water is of good quality but contains hydrogen sulfide in some places.

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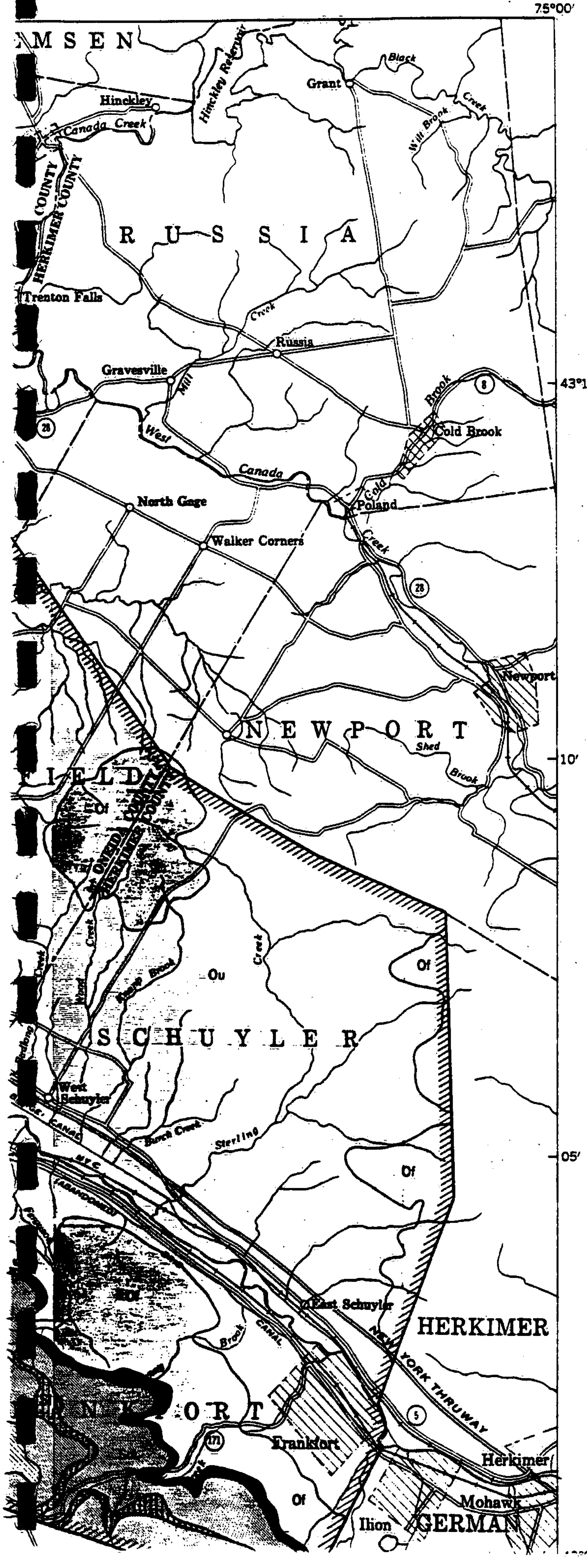

EXPLANATION

SILURIAN

Cayuga

Sm

Manlius limestone

Fossiliferous limestone with shale partings. Furnishes small to moderate quantities of water to domestic wells

Sb

Bertie limestone

Thin-bedded limestone. Furnishes small to moderate quantities of water to domestic wells

Sc

Camillus shale

Mottled red and green shale with thin limestone beds. Furnishes small quantities of water of poor quality

Sv

Vernon shale

Mottled purplish-red shale. Furnishes small quantities of water of poor quality

Niagara

Sl

Lockport dolomite

Nearly black dolomite and shale. Furnishes small to moderate quantities of water of poor quality

Scl

Clinton group

Gray and green shale and sandstone with a few beds of dolomite, conglomerate and red iron ore. Furnishes small supplies of water

Oneida conglomerate

Quartz-pebble conglomerate and sandstone. Unimportant as a water source

ORDOVICIAN

Upper Ordovician

Of

Frankfort shale, includes Pulaski shale

Gray sandy shale with thin dolomite beds. Furnishes small to moderate quantities of water of good quality

Ou

Utica shale

Black carbonaceous shale. Furnishes small to moderate quantities of water, generally of good quality

Contact, approximately located

REFERENCE # 12
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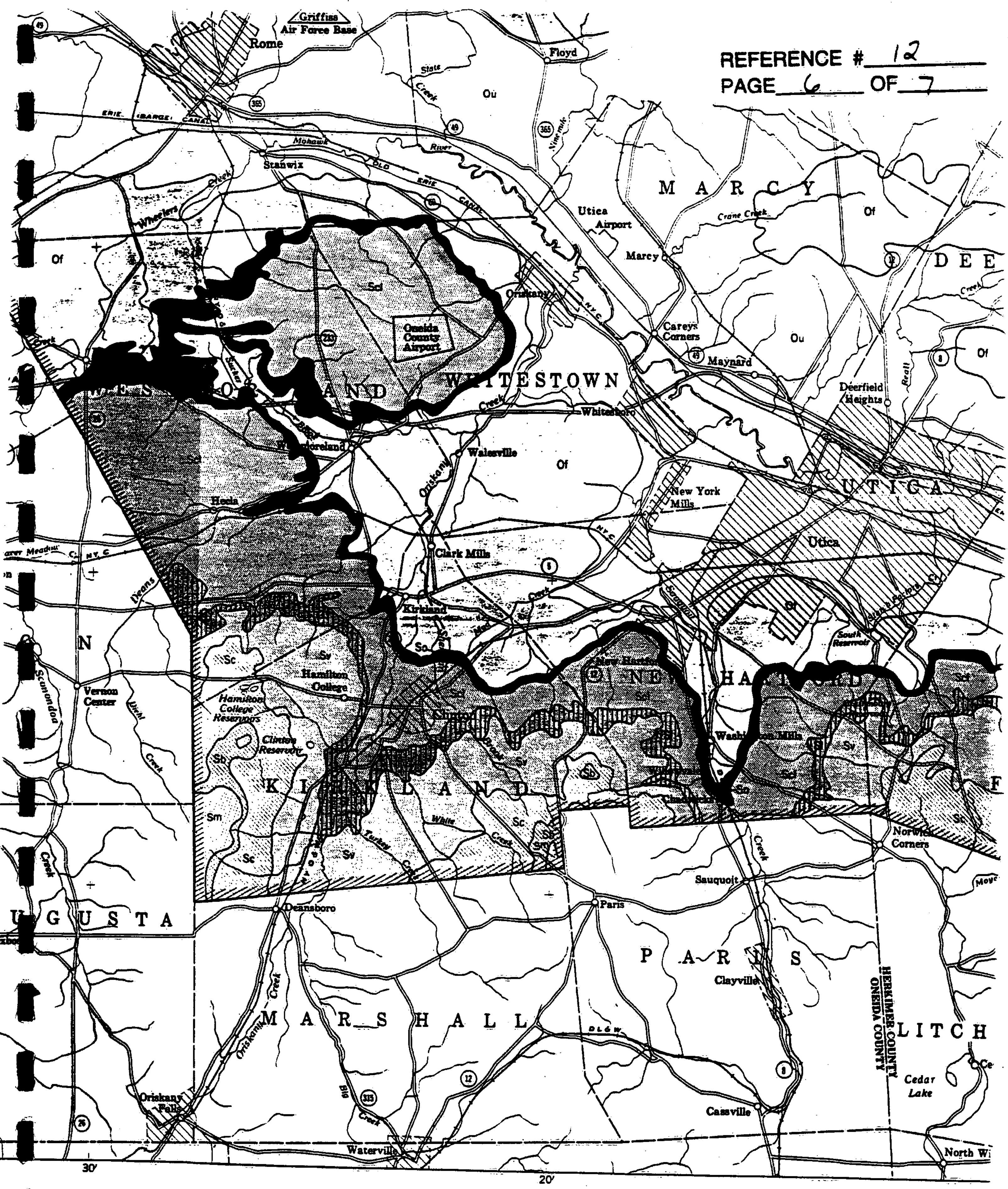
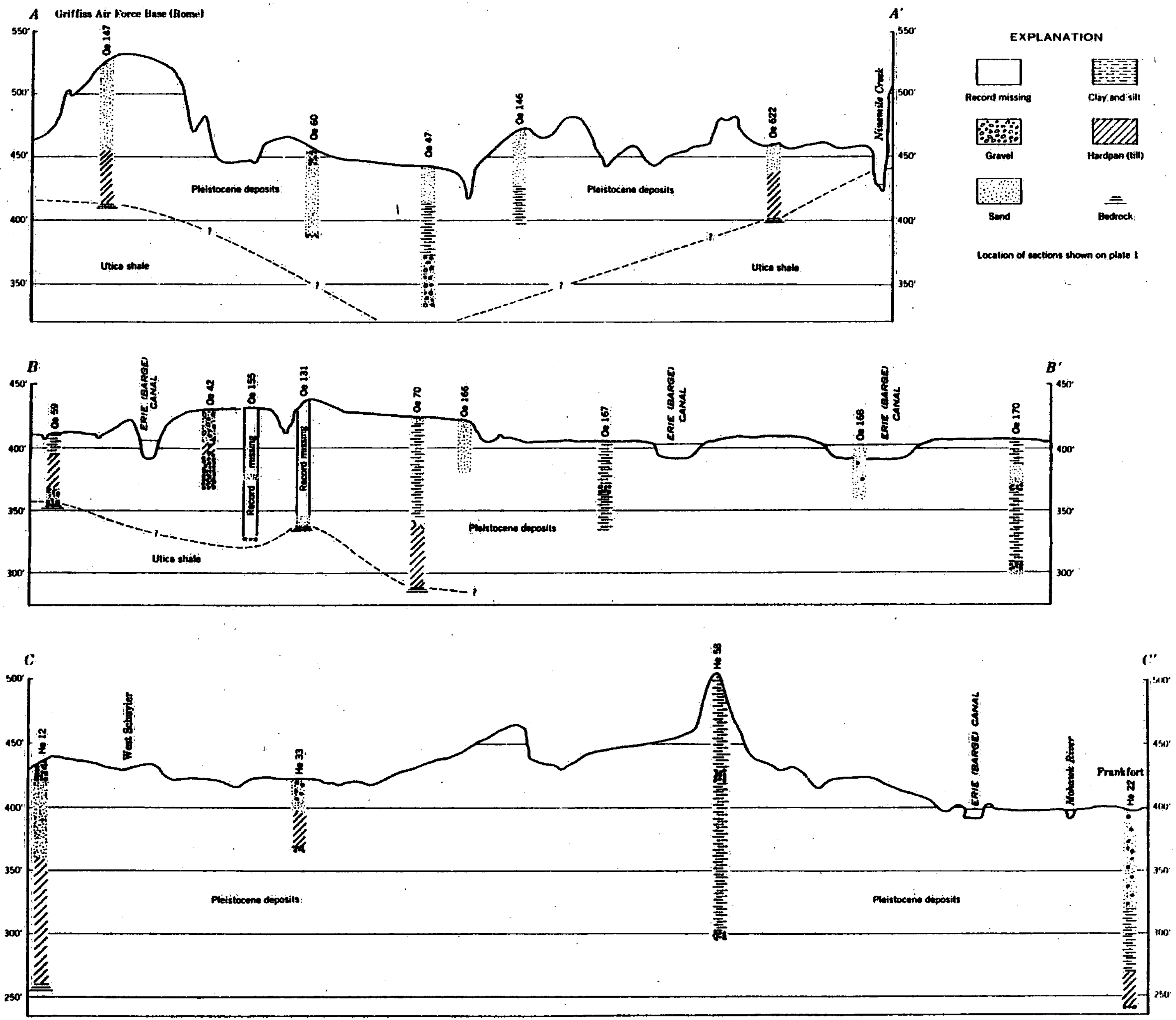


AP OF UTICA-ROME AREA, NEW YORK, SHOWING GEOLOGY OF THE BEDR

SCALE 1:125 000

1 0 1 2 3 4 5 MILES



SECTIONS SHOWING UNCONSOLIDATED DEPOSITS IN THE MOHAWK RIVER CHANNEL BETWEEN ROME AND FRANKFORT

1 0 1 2 MILES

VERTICAL EXAGGERATION × 40
Datum is mean sea level

633991 O - 62 (In Pocket)

REFERENCE # 12
PAGE 7 OF 7

REFERENCE 13

EBASCO SERVICES INCORPORATED

BY D.W. DATE 7/15/92 SHEET 1 OF 3
CHKD. BY ______ DATE ______ OFS NO. 3310.807 DEPT. NO. 940
CLIENT USEPA
PROJECT SSI - Universal Waste
SUBJECT Population Distribution w/in 4 mile radius of Universal Waste site.

Area of City of Utica = 17.54 miles^2 (Refs 7,8,9,10)
Population of City of Utica = 75,632 persons (Ref. 13)
Population density = 75,632 persons / 17.54 miles^2 = 4312 persons/sq. mile

Town	# persons / household (Ref 13)
Town of Frankfort	2.54
Town of Schuyler	2.42
Town of Deerfield	2.92
Town of Marcy	2.64
Town of New Hartford	2.39
Town of Whitestown	2.46

Population of Yorkeville 3,115 (Ref 13)

Radius (miles)	Calculations
0 - 1/4	City of Utica .196 sq. miles (Refs 7,8,9,10) .196 miles^2 × 4312 persons/mile^2 = 845
1/4 - 1/2	City of Utica .589 miles^2 (Refs 7,8,9,10) .589 miles^2 × 4312 persons/mile^2 = 2540
1/2 - 1	City of Utica 2.356 sq. miles (Refs 7,8,9,10) 2.356 miles^2 × 4312 persons/mile^2 = 10,159
1 - 2	City of Utica 8.174 miles^2 (Refs 7,8,9,10) 8.174 miles^2 × 4312 persons/mile^2 = 35,246 Town of Frankfort 30 houses (Refs 7,8,9,10) 30 houses × 2.54 persons/household = 76 Town of Deerfield 89 houses (Refs 7,8,9,10) 89 houses × 2.92 persons/household = 260

EBASCO SERVICES INCORPORATED

BY D.W. DATE 7/15/92 SHEET 2 OF 3
CHKD. BY ____ DATE ____ OFS NO. 3310.807 DEPT. NO. 940
CLIENT USEPA
PROJECT SSI - Universal Waste
SUBJECT Population

Radius	Calculations
1-2 (cont'd)	Total = 35,246 + 76 + 260 = 35,582
2-3	City of Utica 1.658 miles^2 (Refs 7,8,9,10) 1.658 miles^2 × 4312 persons/mile^2 = 7149
	Town of Frankfort 164 houses (Refs 7,8,9,10) 164 houses × 2.64 persons/household = 433
	Town of Schuyler 74 houses (Refs 7,8,9,10) 74 houses × 2.42 persons/household = 179
	Town of Deerfield 152 houses (Refs 7,8,9,10) 152 houses × 2.92 persons/household = 444
	Town of Marcy 105 houses (Refs 7,8,9,10) 105 houses × 2.64 persons/household = 277
	Town of New Hartford 266 houses (Refs 7,8,9,10) 266 houses × 2.39 persons/household = 636
	Total = 7149 + 433 + 179 + 444 + 277 + 636 = 9118
3-4	City of Utica 2.505 miles^2 (Refs 7,8,9,10) 2.505 miles^2 × 4312 persons/mile^2 = 10,802
	Town of Schuyler 119 houses (Refs 7,8,9,10) 119 houses × 2.42 persons/household = 288
	Town of Deerfield 40 houses (Refs 7,8,9,10) 40 houses × 2.92 persons/household = 117

EBASCO SERVICES INCORPORATED

BY D.W. DATE 7/15/92 SHEET 3 OF 3
CHKD. BY ______ DATE ______ OFS NO. 3310.307 DEPT. NO. 940
CLIENT USEPA
PROJECT SSI - Universal Waste
SUBJECT Population

Radius | Calculations

3-4 (cont'd)

Town of Marcy 154 houses (Refs 7,8,9,10)
154 houses × 2.64 persons/household = 407

Town of Whitestown 213 houses (Refs 7,8,9,10)
213 houses × 2.46 persons/household = 524

Town of New Hartford 491 houses (Refs 7,8,9,10)
491 houses × 2.39 persons/household = 1173

Town of Frankfort 221 houses (Refs 7,8,9,10)
221 houses × 2.54 persons/household = 561

Yorkeville (village) total population = 3,115

Total = 10,802 + 288 + 117 + 407 + 524 + 1173 + 561 + 3115 = 16,987

Total population w/in 4 mile radius = 75,231

REFERENCE # 13
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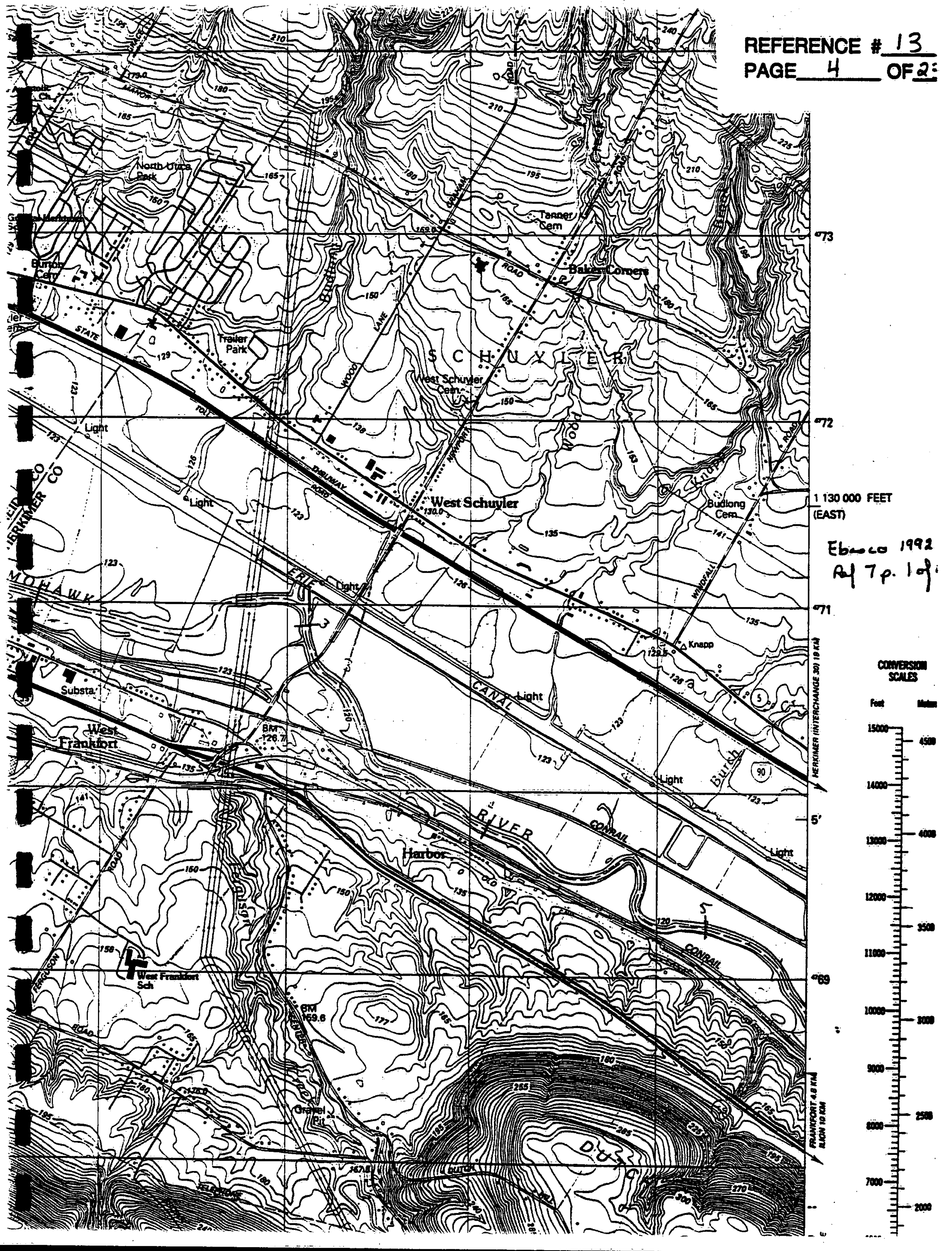

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REFERENCE # 13
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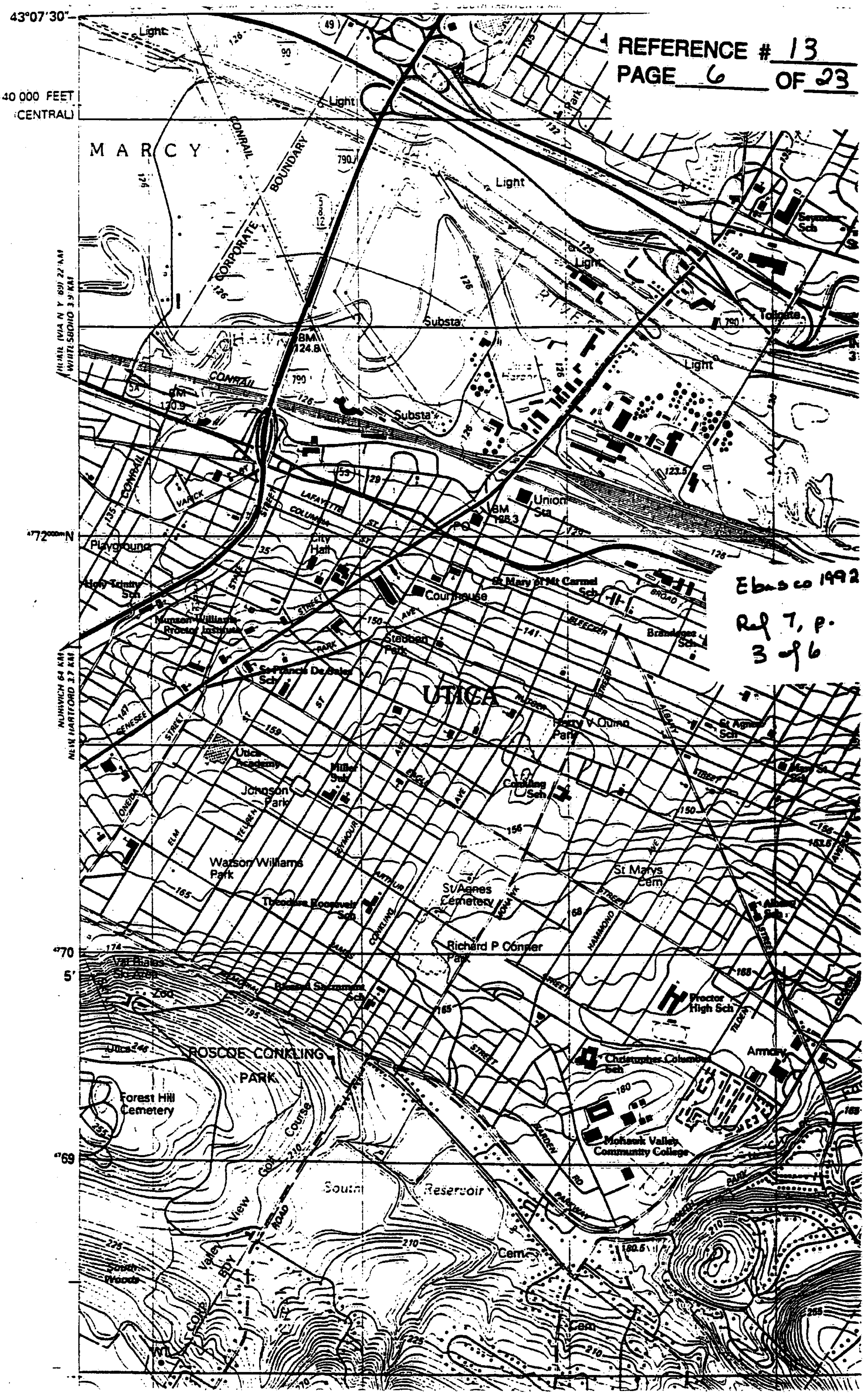
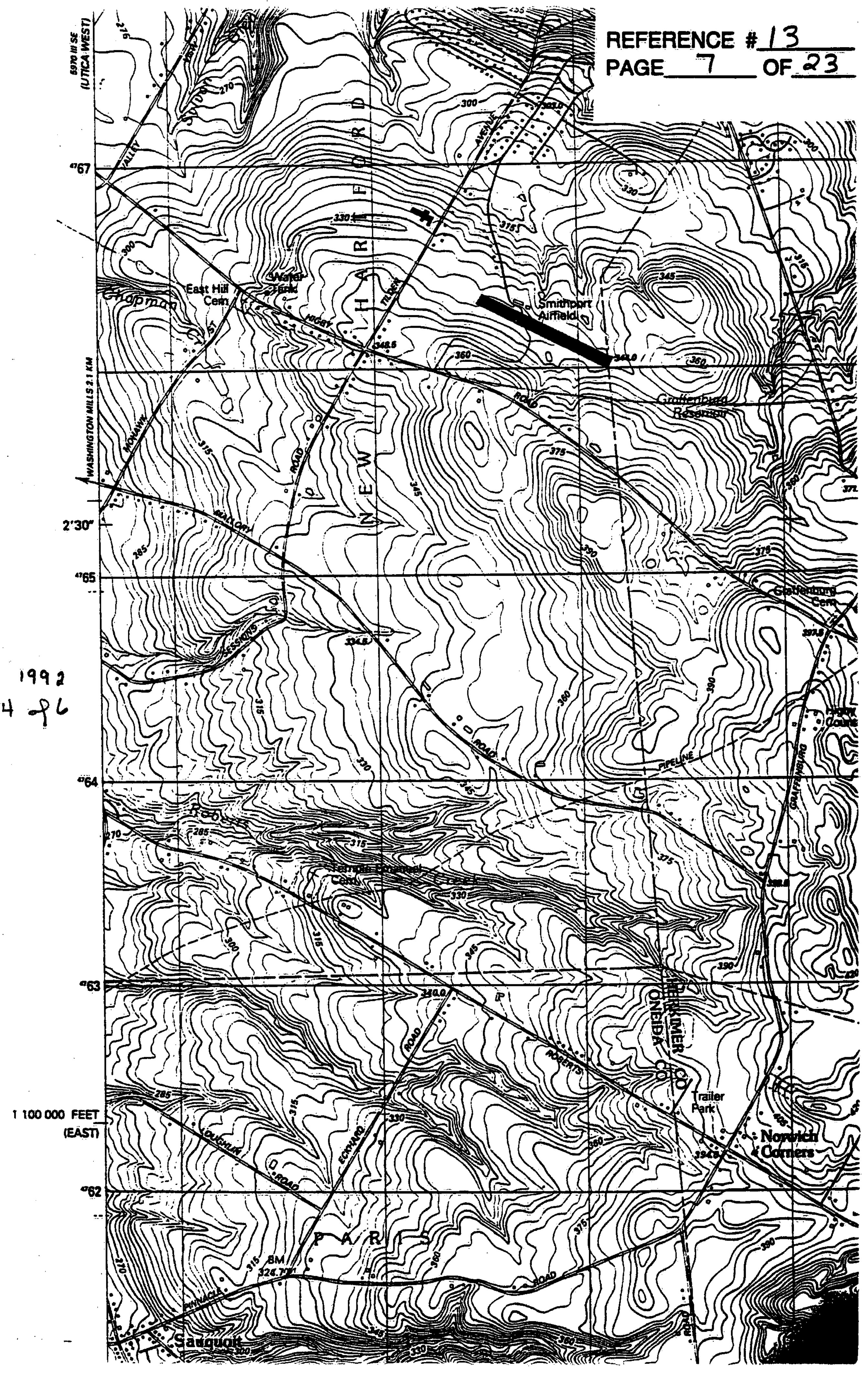


Ebasco 1992
Ref 7, p. 3 of 6

Ebasco 1992
Ref 7 p.4 of 6



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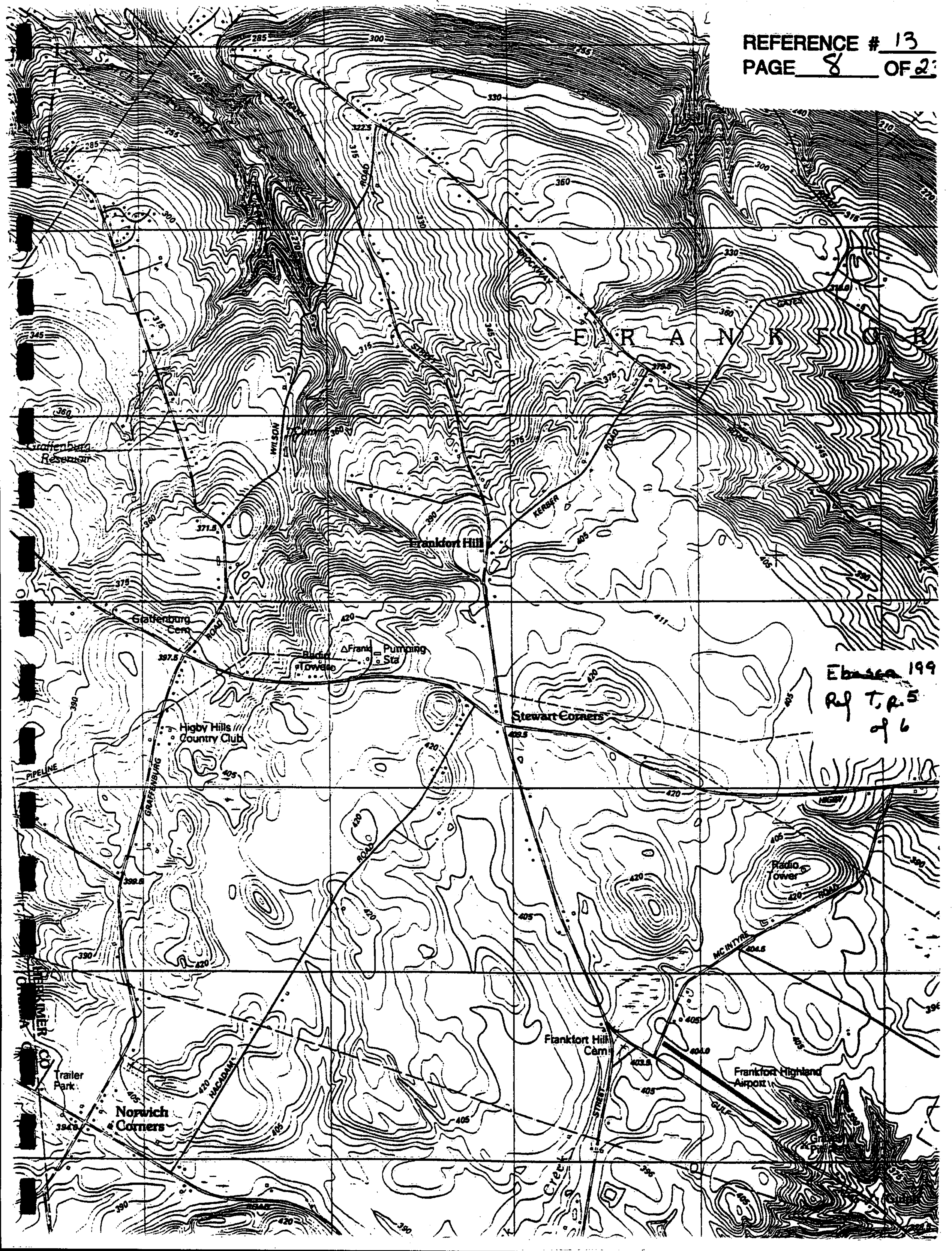
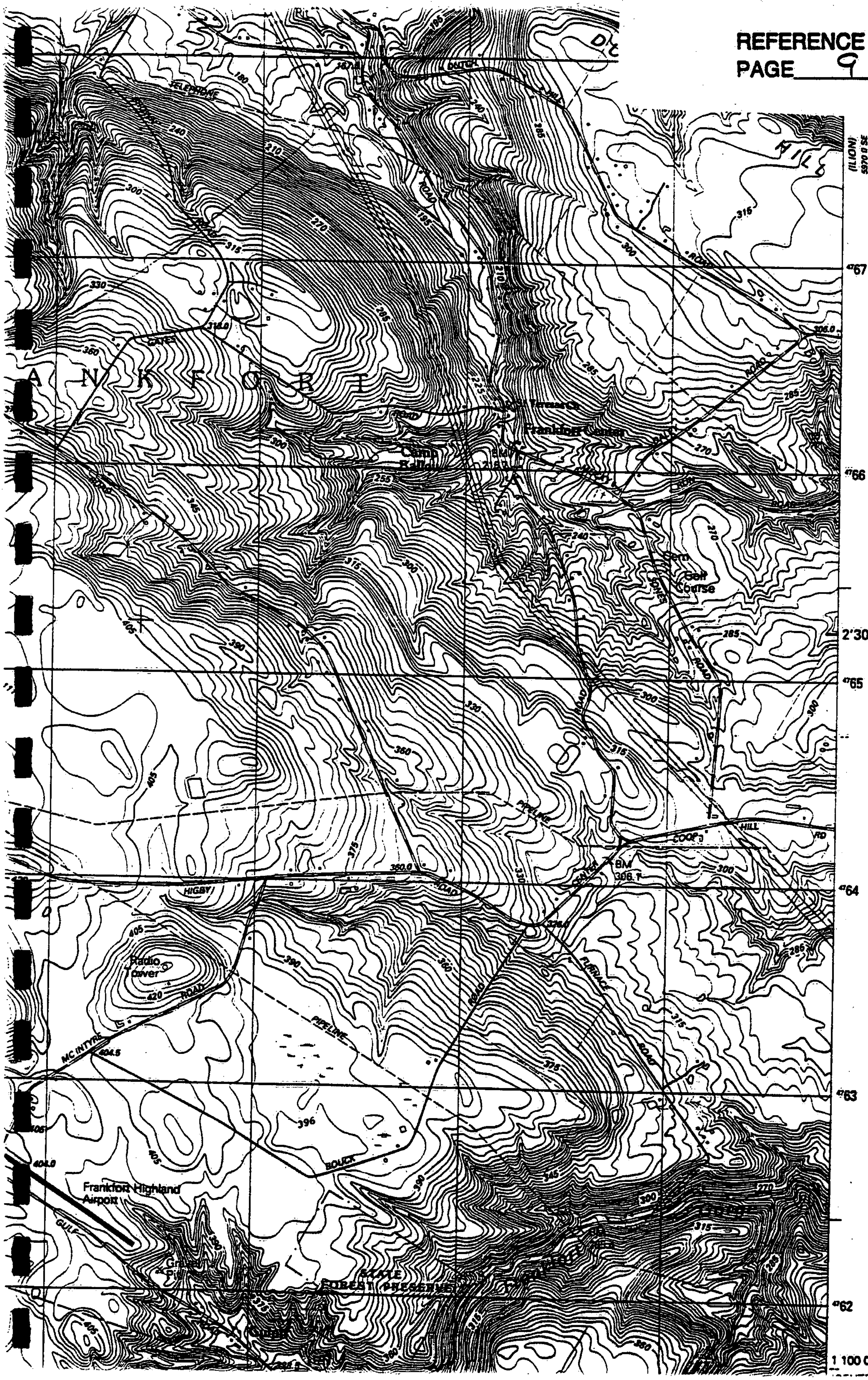
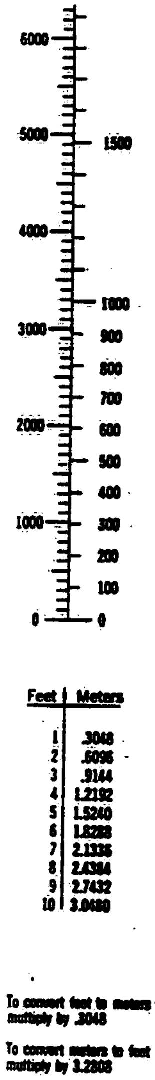
of 6







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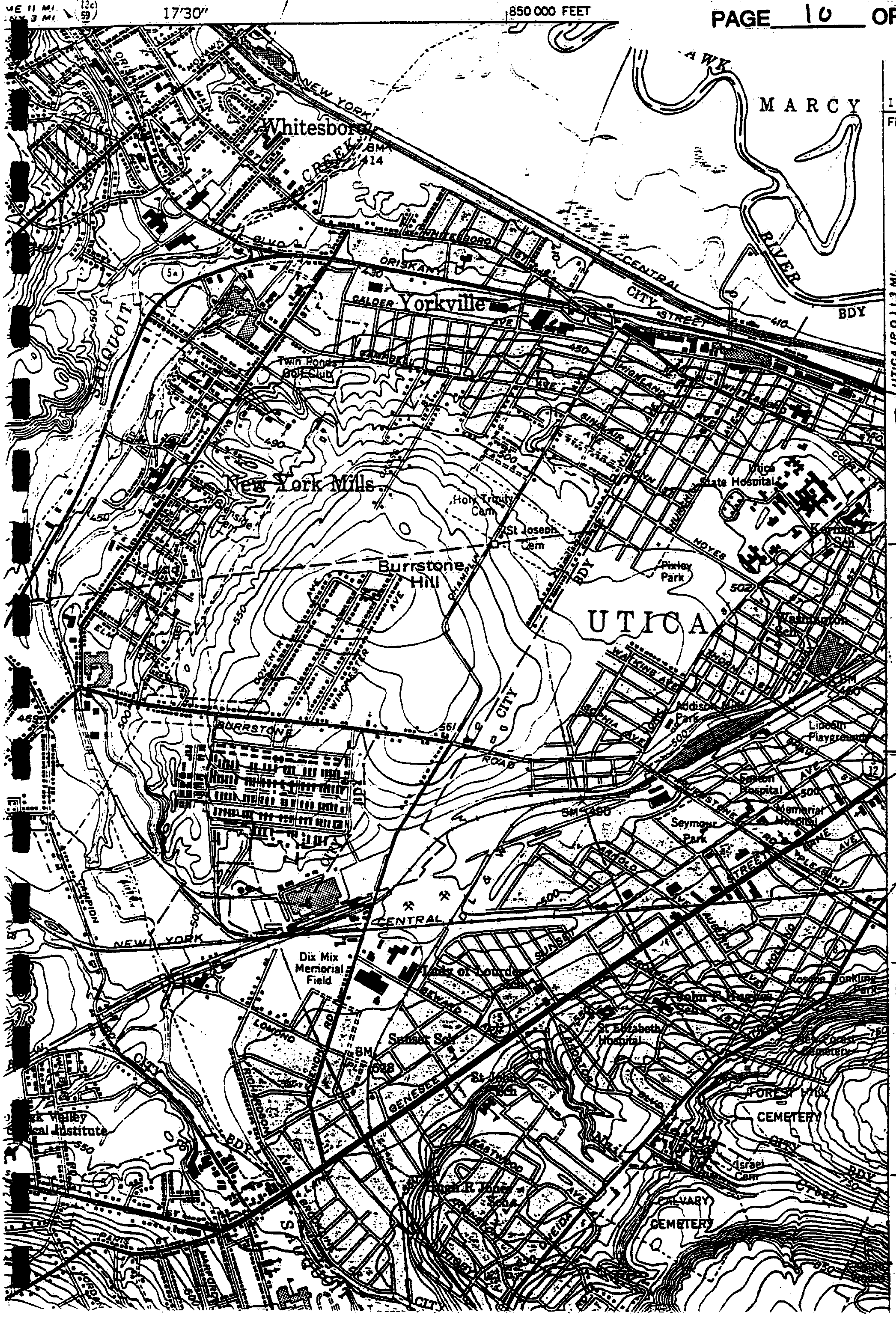

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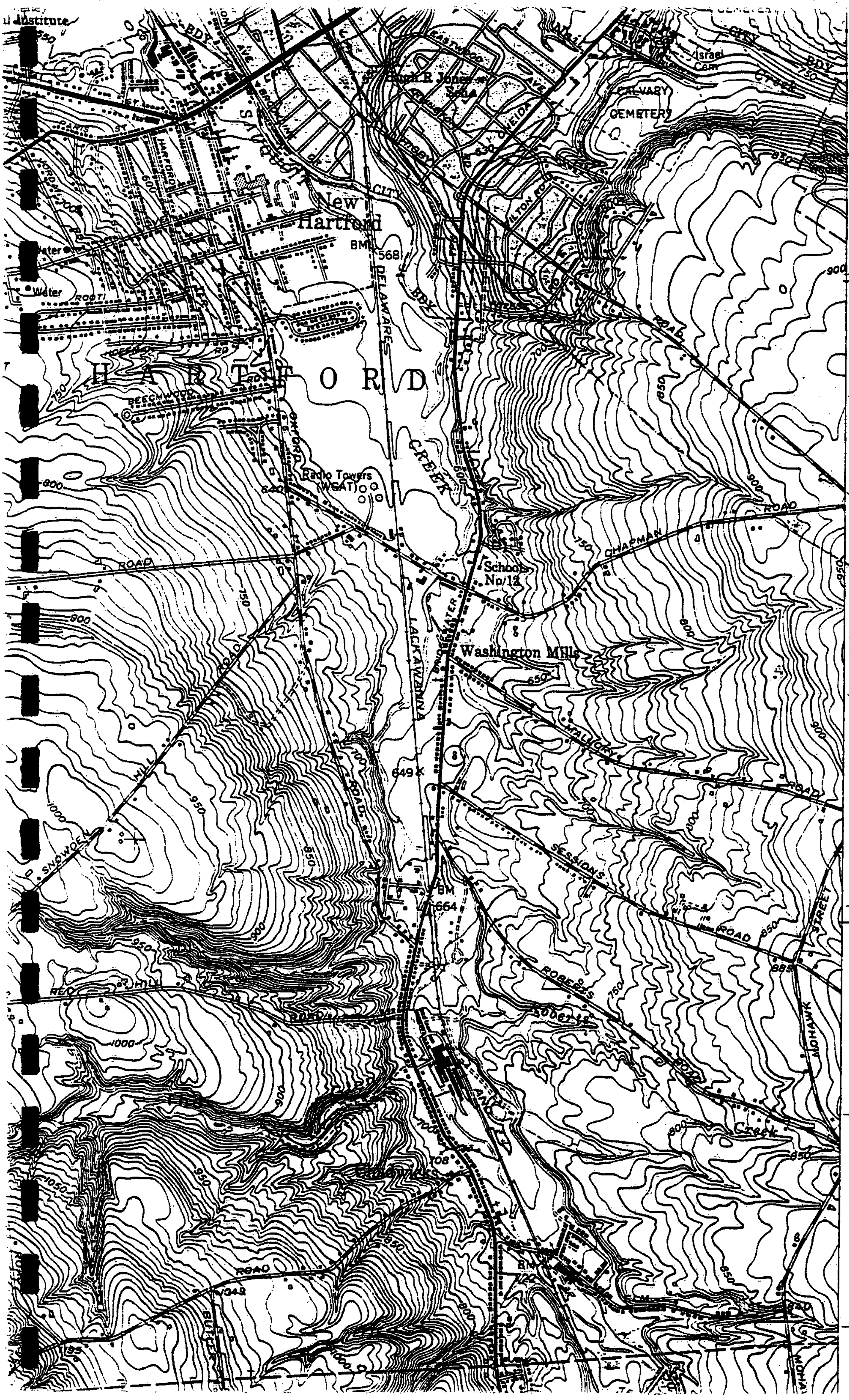
Ref 8, p. 1 of.



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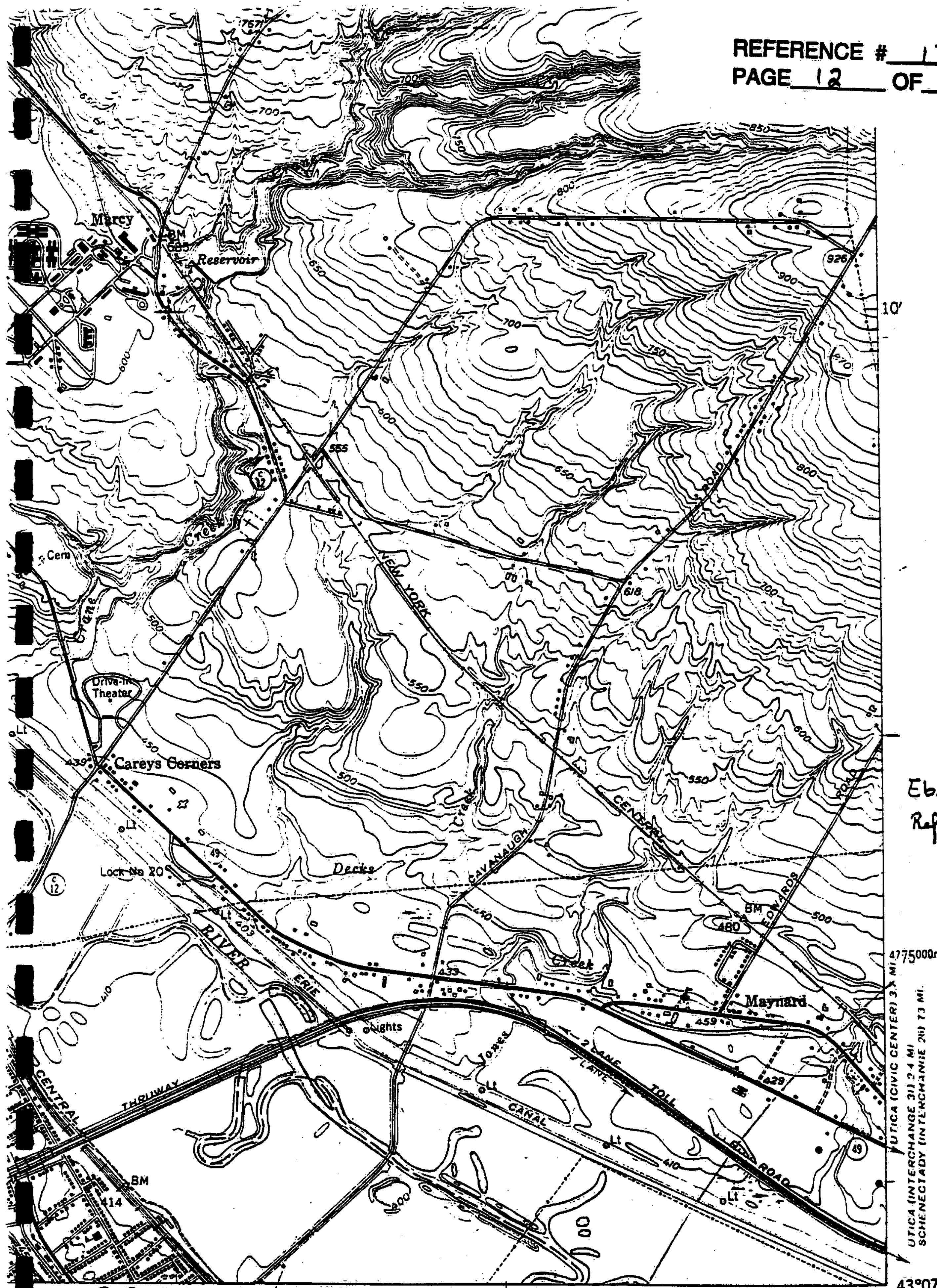

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ROAD CLASSIFICATION

Heavy-duty ______ Light-duty ______

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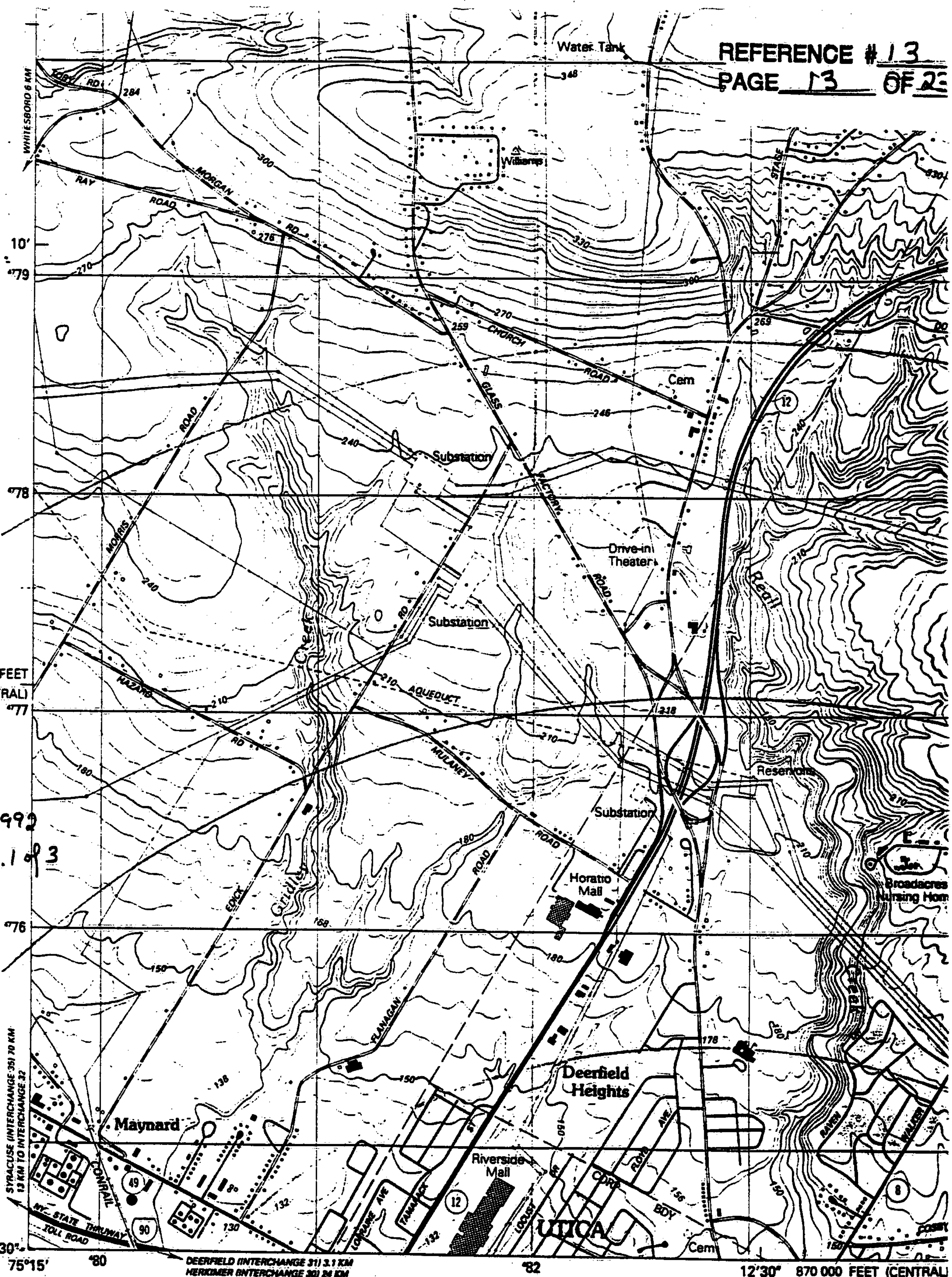

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(UTICA WEST)
5970 III SE

Produced by the United States Geological Survey
in cooperation with New York Department of Transportation

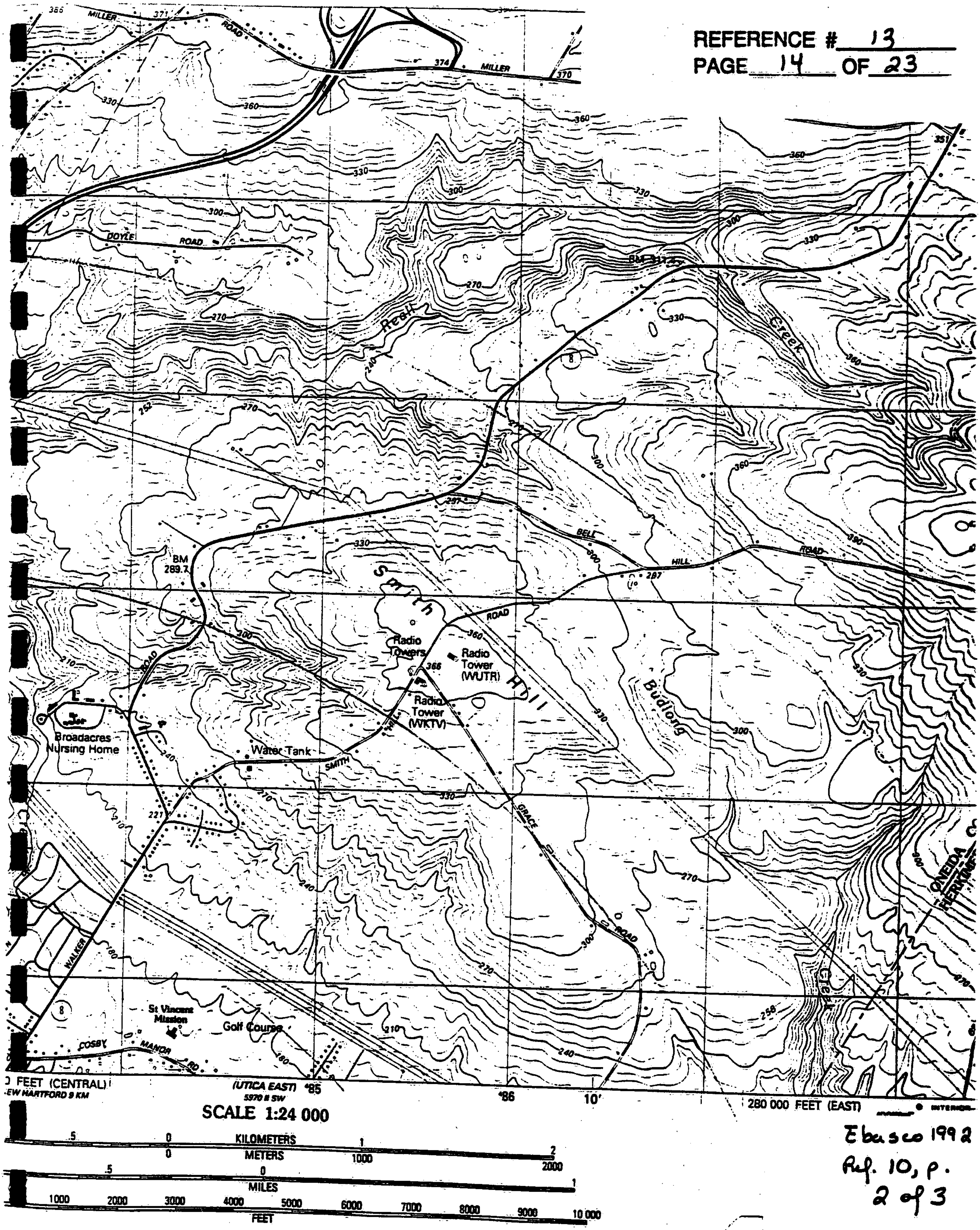
Control by USGS and NOS/NOAA

Compiled by photogrammetric methods from aerial photographs taken 1974. Field checked 1974. Map edited 1983
Supersedes map dated 1955

Projection and 1000-meter grid, zone 18: Universal Transverse Mercator
10 000-foot grid ticks based on New York coordinate...

MN GN
13°
231 MILS
0°08′
2 MILS

1 .5
1000
1
1000 0 1000



CONTOUR INTERVAL 6 METERS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
CONTROL ELEVATIONS SHOWN TO THE NEAREST 0.1 METER
OTHER ELEVATIONS SHOWN TO THE NEAREST METER

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Interstate R

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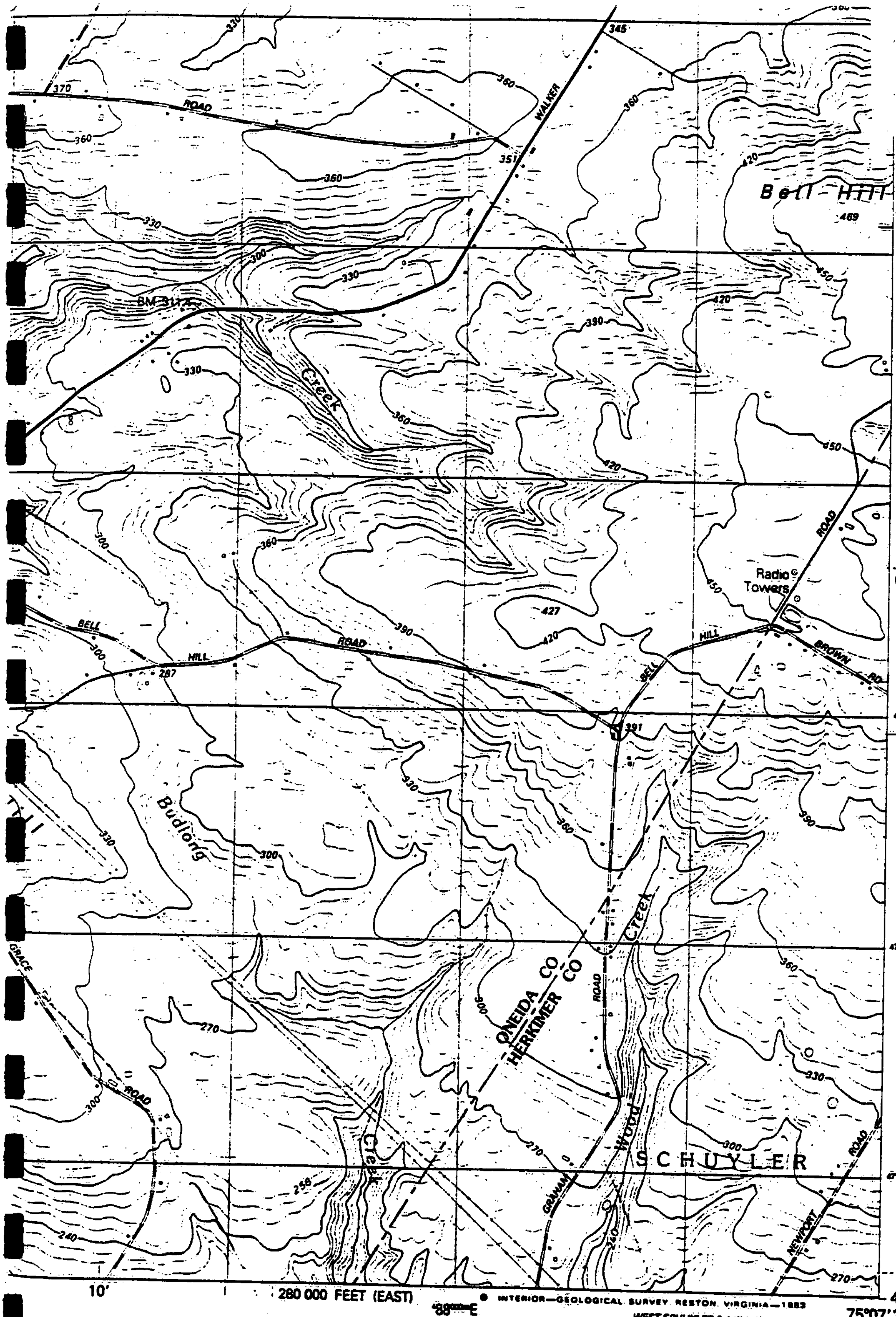

Feet	Meters
1	.3048
2	.6096
3	.9144
4	1.2192
5	1.5240
6	1.8288
7	2.1336
8	2.4384
9	2.7432
10	3.0480

To convert feet to meters multiply by .3048

To convert meters to feet multiply by 3.2808

ROAD CLASSIFICATION

Primary highway, hard surface ....
Light-duty road, hard or improved surface ....
Secondary highway, hard surface ....
Unimproved road ....
Interstate Route
U. S. Route
State Route

NEW YORK

(ILION)
5970 II SE

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CHARACTERISTICS OF HOUSING UNITS

General Housing Characteristics

NEW YORK

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1980 Census of Housing

U.S. Department of Commerce
BUREAU OF THE CENSUS

Table 1. **Summary of General Housing Characteristics: 1980**—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

The State
Urban and Rural and Size of Place
Inside and Outside SMSA's
SCSA's
SMSA's
Urbanized Areas
Places of 1,000 or More
Counties

			Year-round housing units				Occupied									Vacancy rate	
					Percent						Percent						
	Total persons	Total housing units	Total	Median rooms	One unit at address	Lacking complete plumbing for exclusive use	Total	Owner	Median rooms	Median number of persons	Lacking complete plumbing for exclusive use	With 1.01 or more persons per room	One unit at address	Median value (dollars), specified owner	Median contract rent (dollars), specified renter	Homeowner	Rental
PLACES OF 1,000 OR MORE—Con.																	
South Huntington CDP	14 854	4 607	4 597	6.8	87.6	0.7	4 535	4 015	6.8	3.13	0.7	1.0	88.0	58 600	309	0.1	1.7
South Lockport CDP	[illegible]	1 132	1 132	5.6	86.3	0.9	1 103	656	5.6	2.85	0.8	1.1	66.5	48 600	153	1.1	1.5
South Nyack village	3 602	1 265	1 279	4.4	38.5	3.0	1 232	558	4.5	2.17	2.7	5.6	39.4	54 400	262	1.2	4.4
Southold CDP	4 770	2 871	2 215	5.8	92.6	0.5	1 957	1 622	5.9	2.10	0.6	0.9	92.8	61 500	243	1.6	8.0
Southport CDP	6 329	3 281	3 271	5.4	84.3	0.6	3 132	2 428	5.4	2.32	0.5	1.6	85.0	29 200	175	1.6	5.0
South Valley Stream CDP	5 462	2 007	2 002	6.9	93.2	-	1 991	1 554	7.0	2.50	0.1	0.8	93.2	73 000	353	0.3	0.5
South Westbury CDP	4 732	2 980	2 976	6.9	95.3	0.2	2 960	2 826	6.9	3.12	0.2	1.0	95.3	52 400	343	0.3	2.9
Spackenkill CDP	4 648	460	1 459	7.4	97.7	0.1	1 442	1 383	7.4	3.25	0.1	0.7	97.7	66 200	400	0.7	4.8
Sparrow Bush CDP	1 049	421	407	5.3	73.5	0.5	393	329	5.3	2.37	0.5	2.3	71.5	32 000	158	0.9	11.1
Spencerport village	3 424	1 196	1 196	6.2	81.3	0.8	1 173	887	6.2	2.58	0.8	0.9	82.0	47 700	225	0.6	1.7
[illegible]	[illegible]	1 524	1 707	5.3	95.9	0.1	1 264	1 052	5.3	2.21	0.2	1.9	95.6	59 200	272	5.0	20.3
[illegible]	[illegible]	[illegible]	[illegible]	3.9	38.9	1.7	7 511	1 984	3.9	2.34	1.8	8.0	40.4	50 400	298	1.5	6.6
[illegible]	[illegible]	559	1 559	5.7	94.4	1.7	1 501	947	5.7	2.37	1.8	1.4	65.6	35 300	156	0.8	3.0
[illegible]	[illegible]	606	607	6.6	97.0	-	599	578	6.6	3.83	-	3.2	97.2	51 900	263	0.3	4.5
[illegible]	[illegible]	577	546	5.7	57.7	3.3	486	278	5.7	2.06	2.9	2.0	59.0	32 700	177	4.5	10.6
[illegible]	[illegible]	407	407	5.5	63.1	0.5	356	263	5.5	2.37	0.5	1.6	62.7	37 100	146	3.7	5.4
[illegible]	[illegible]	596	510	5.2	79.2	2.5	465	361	5.3	2.27	2.2	3.2	80.0	26 600	124	2.4	9.6
[illegible]	[illegible]	666	888	5.1	55.5	0.9	638	219	5.1	3.17	1.0	4.1	56.8	38 900	245	2.7	1.6
[illegible]	[illegible]	745	745	6.4	89.0	-	732	650	6.4	3.03	-	1.4	89.5	67 900	313	-	3.5
[illegible]	[illegible]	563	552	5.6	59.4	1.4	535	368	5.6	2.68	1.3	2.6	60.2	33 600	163	0.3	5.6
Stony Brook CDP	16 155	[illegible]	5 053	7.1	96.0	0.3	4 955	4 407	7.1	3.19	0.3	0.9	96.6	55 300	385	0.7	0.9
Stony Point CDP	8 686	2 622	2 615	6.2	80.0	0.3	2 565	2 214	6.2	3.21	0.3	2.5	80.3	61 200	254	0.2	3.1
[illegible]	[illegible]	533	[illegible]	5.5	67.9	1.3	501	357	5.5	2.34	1.2	1.8	67.9	31 100	127	2.2	5.3
Suffern village	10 794	4 110	4 107	4.7	57.8	1.3	3 994	2 261	4.6	2.31	1.3	2.1	58.6	55 900	357	0.8	3.2
[illegible]	[illegible]	279	277	7.8	95.3	0.4	274	257	7.8	4.36	0.4	1.6	95.6	48 800	190	0.4	-
Sylvan Beach village	1 243	657	479	4.8	72.2	1.1	446	300	4.9	2.37	2.2	6.3	73.3	20 400	160	2.6	10.4
Syosset CDP	9 818	3 046	3 042	7.0	92.8	0.3	2 966	2 690	7.0	3.13	0.3	0.9	92.9	74 900	229	1.1	4.5
Syracuse city	170 105	73 175	73 148	5.1	49.2	2.5	66 961	28 092	5.2	2.00	2.2	2.3	51.4	31 000	168	1.2	7.2
Tappan CDP	8 267	2 362	2 362	7.3	91.7	0.6	2 322	2 085	7.4	3.58	0.6	1.0	92.0	78 500	263	0.3	3.7
Tarrytown village	10 648	4 017	4 016	4.6	43.6	3.2	3 961	1 782	4.6	2.17	3.1	2.3	43.8	81 900	267	0.4	0.8
[illegible]	2 684	1 043	1 036	6.3	65.0	0.5	1 031	720	6.4	2.32	0.5	2.4	65.1	103 200	387	0.3	2.3
[illegible]	7 197	2 067	2 087	6.7	67.9	0.6	2 072	1 637	6.7	3.11	0.6	0.9	88.2	88 000	304	0.4	0.9
Ticonderoga village	[illegible]	[illegible]	1 103	5.9	71.9	1.7	1 051	740	6.0	2.31	1.5	2.2	72.7	27 300	156	2.2	3.7
[illegible]	[illegible]	576	568	5.6	66.0	1.6	574	439	5.6	2.58	1.7	1.5	86.8	36 000	193	1.8	9.6
Tonawanda city	18 693	6 694	6 889	5.4	74.7	1.2	6 681	4 905	5.4	2.47	1.1	1.5	76.0	34 000	158	0.6	4.2
Tonawanda CDP	[illegible]	26 746	26 742	5.6	78.5	0.6	26 255	19 921	5.7	2.41	0.5	1.4	79.3	41 100	200	0.2	3.7
[illegible]	[illegible]	653	652	6.4	93.6	0.6	636	770	6.4	3.49	0.4	1.3	93.8	51 800	179	0.3	2.9
[illegible]	[illegible]	[illegible]	434	5.8	63.6	1.2	416	376	5.8	2.53	1.0	1.0	64.4	32 600	133	0.8	[illegible]
Troy city	56 638	22 587	22 579	5.2	30.5	3.2	20 491	8 391	5.5	2.14	2.7	2.5	32.6	29 300	134	1.0	[illegible]
Trumansburg village	[illegible]	684	682	6.0	66.0	2.6	647	[illegible]	6.1	2.36	2.2	1.7	66.8	39 500	180	0.2	[illegible]
Tuckahoe village	6 076	2 401	2 396	4.3	33.4	2.3	2 343	880	4.3	2.23	2.3	3.8	33.9	76 900	288	1.1	[illegible]
Tully village	1 049	393	391	5.6	64.2	0.5	373	214	5.7	2.46	0.5	0.5	65.1	38 100	201	-	[illegible]
Tupper Lake village	4 478	1 763	1 749	5.2	69.6	3.1	1 637	1 105	5.3	2.29	3.1	3.4	72.2	26 700	121	1.8	[illegible]
Unadilla village	1 367	578	573	6.0	69.5	3.0	537	359	6.1	2.15	2.6	0.7	70.8	29 700	140	3.0	[illegible]
Uniondale CDP	20 016	5 833	5 831	6.1	82.5	0.8	5 737	4 718	6.1	3.11	0.8	4.7	82.6	42 800	280	0.7	[illegible]
Union Springs village	[illegible]	429	411	6.1	80.5	1.0	390	304	6.2	2.69	0.8	2.1	81.3	32 600	169	1.3	[illegible]
Upper Brookville village	1 245	403	396	8.5+	95.5	0.3	382	331	8.5+	2.83	-	1.3	91.1	200 000	383	0.9	
Upper Nyack village	1 906	665	665	6.5	86.5	1.1	655	554	6.5	2.38	0.8	0.6	86.6	66 600	272	0.4	[illegible]
Utica city	75 632	31 796	31 750	5.4	44.2	2.6	28 897	14 465	5.5	2.12	2.3	2.2	46.9	28 100	130	1.1	[illegible]
Vails Gate CDP	3 156	1 241	1 238	4.7	59.7	0.8	1 174	467	4.7	2.34	0.8	2.2	61.5	40 800	266	2.4	[illegible]
Valatie village	1 492	503	502	5.7	62.0	2.8	470	277	5.7	2.28	2.6	1.7	63.2	36 400	169	1.8	[illegible]
Valley Cottage CDP	6 214	2 842	2 832	5.5	81.6	0.8	2 746	2 313	5.5	2.57	0.8	1.5	81.4	68 300	328	0.7	[illegible]
Valley Stream village	35 769	12 234	12 220	6.0	71.4	1.1	12 042	9 513	6.0	2.66	1.1	1.7	71.9	51 800	302	0.4	
Vernon village	1 373	576	568	5.6	58.5	3.0	524	311	5.7	2.23	2.1	1.5	60.7	33 000	188	0.6	[illegible]
Verona CDP	1 057	349	349	5.9	66.5	1.7	336	303	5.9	2.83	1.5	3.9	89.3	31 300	172	-	[illegible]
Victor village	2 373	751	751	6.4	84.8	1.3	732	585	6.4	3.17	1.4	2.0	85.4	42 200	187	0.8	
Village of the Branch village	1 707	466	466	7.7	97.5	0.4	476	458	7.7	3.55	0.4	0.4	97.9	64 900	325	0.4	
Viola CDP	5 340	1 462	1 462	8.0	93.5	0.3	1 445	1 348	8.0	3.71	0.2	0.5	93.6	81 600	345	0.5	
Voorheesville village	3 320	1 054	1 053	6.7	77.0	0.5	1 032	805	6.8	3.12	0.5	0.7	77.5	48 700	236	0.2	
Walden village	5 659	2 141	2 136	5.3	61.4	2.7	2 030	1 232	5.4	2.42	2.4	3.3	63.2	31 500	198	1.8	
Wallkill CDP	2 064	768	783	5.4	72.7	1.0	747	520	5.5	2.38	0.9	2.1	73.8	35 900	209	0.2	
Walton village	3 329	1 394	1 391	6.0	64.2	1.5	1 298	841	6.0	2.18	1.6	0.8	65.3	28 100	146	2.4	
Walton Park CDP	1 475	599	466	6.1	93.8	0.6	437	387	6.1	3.33	0.7	2.3	94.1	50 100	246	0.5	
Wantagh CDP	19 817	5 949	5 937	6.7	93.2	0.2	5 884	5 503	6.8	3.24	0.2	1.2	93.3	52 500	339	0.2	
Wappingers Falls village	5 110	2 062	2 061	4.7	49.9	1.7	1 947	878	4.8	2.24	1.7	2.7	51.7	38 600	230	1.3	
Wappingers Falls East CDP	1 818	649	645	5.4	65.0	0.3	634	338	5.4	2.65	0.3	0.5	65.9	53 900	294	0.6	
Wappingers Falls North CDP	1 799	601	600	6.1	85.0	-	596	554	6.2	2.81	-	1.5	85.2	51 100	185	0.2	
Warrensburg CDP	2 834	1 136	1 117	5.6	72.3	4.1	1 005	724	5.7	2.47	3.5	2.8	72.8	28 900	153	2.4	
Warsaw village	3 619	1 388	1 388	6.2	71.0	1.4	1 323	882	6.2	2.17	1.5	0.9	72.3	33 100	166	1.2	
Warwick village	4 320	1 633	1 627	5.7	70.4	2.1	1 549	953	5.7	2.39	2.2	1.6	70.9	49 700	241	1.8	
Washington Heights CDP	[illegible]	463	460	5.4	86.1	0.7	445	372	5.4	2.40	0.7	2.0	87.0	32 700	224	0.5	
Washingtonville village	[illegible]	873	869	5.3	62.6	0.7	785	612	5.5	2.82	0.5	2.5	67.1	49 200	223	5.1	
Waterford village	[illegible]	1 021	1 021	5.7	34.3	3.0	954	487	5.7	2.16	2.1	1.6	34.6	28 000	140	2.4	
Waterloo village	[illegible]	1 874	1 874	6.1	79.5	1.9	1 772	1 374	6.1	2.49	1.4	1.5	80.5	28 400	160	1.6	
Watertown city	27 861	11 315	[illegible]	5.6	59.9	3.0	10 573	5 427	5.7	2.18	2.5	1.7	61.7	29 000	151	1.4	
Waterville village	1 672	572	572	6.3	61.9	1.6	547	340	6.4	2.44	1.5	1.8	62.5	27 100	164	0.6	
Watervliet city	11 354	5 017	5 012	5.5	30.2	1.6	4 686	2 045	5.6	2.06	1.5	1.4	31.2	27 500	129	1.6	
Watkins Glen village	2 440	1 048	[illegible]	6.0	64.5	1.5	947	614	6.1	2.18	1.6	1.9	68.1	31 500	160	2.7	
Waverly village	4 738	1 936	1 936	5.9	60.3	3.0	1 792	1 133	6.0	2.25	2.2	1.3	62.7	25 100	154	1.6	
Wayland village	1 846	676	677	6.7	85.1	2.2	645	522	6.8	2.50	2.3	0.8	86.0	29 700	157	0.6	

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Table 1. Summary of General Housing Characteristics: 1980—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

The State; Urban and Rural and Size of Place; Inside and Outside SMSA's; SCSA's; SMSA's; Urbanized Areas; Places of 1,000 or More; Counties	Total persons	Total housing units	Year-round housing units: Total	Median rooms	Percent: One unit at address	Percent: Lacking complete plumbing for exclusive use	Occupied: Total	Owner	Median rooms	Median number of persons	Percent: Lacking complete plumbing for exclusive use	Percent: With 1.01 or more persons per room	Percent: One unit at address	Median value (dollars) specified owner	Median contract rent (dollars) specified renter	Vacancy rate: Homeowner	Vacancy rate: Rental
PLACES OF 1,000 OR MORE—Con.																	
Webster village	5 499	2 185	2 184	4.9	67.0	1.0	2 134	934	4.9	2.20	1.0	1.2	67.3	47 600	221	0.4	2.0
Weedsport village	1 952	664	662	6.3	71.5	0.9	631	467	6.3	2.63	1.0	1.4	73.1	31 800	176	1.5	7.9
Wellsville village	5 769	2 368	2 368	5.8	63.6	1.2	2 222	1 347	5.9	2.18	0.9	1.2	66.2	30 300	148	0.8	8.8
West Amityville (CDP)	6 623	2 270	2 264	6.1	77.7	1.0	2 227	1 531	6.1	2.71	0.9	2.5	77.5	44 900	311	1.2	0.3
West Babylon (CDP)	41 699	12 749	12 715	5.9	81.8	0.9	12 396	9 529	5.9	3.17	0.9	2.8	82.1	41 900	329	1.0	2.4
West Bay Shore (CDP)	5 118	1 581	1 581	6.6	88.9	0.3	1 556	1 457	6.6	3.12	0.3	1.8	89.2	43 700	318	0.6	2.0
Westbury village	13 871	4 764	4 759	6.4	75.6	1.6	4 668	3 673	6.4	2.63	1.4	2.4	76.4	57 200	300	0.5	3.0
West Carthage village	1 824	640	640	6.1	70.5	1.7	616	453	6.1	2.68	1.6	1.3	71.1	29 100	149	1.1	3.6
West Elmira (CDP)	5 485	2 150	2 136	6.4	91.0	0.1	2 076	1 783	6.4	2.27	0.1	0.4	91.3	46 800	250	1.3	3.9
West End (CDP)	1 715	746	743	5.5	69.9	0.4	731	587	5.5	2.11	0.4	0.5	69.9	32 800	164	1.0	2.0
Westfield village	3 446	1 447	1 446	6.1	70.7	2.7	1 349	930	6.2	2.20	1.9	1.1	73.1	36 000	146	0.5	9.9
West Glens Falls (CDP)	5 331	1 764	1 751	5.3	76.5	2.8	1 691	1 433	5.4	2.81	2.4	5.4	77.1	33 600	158	0.7	5.5
Westhampton (CDP)	2 774	1 438	1 257	5.4	86.3	1.0	1 028	694	5.4	2.36	0.9	2.5	84.3	58 800	264	1.3	20.7
Westhampton Beach village	1 629	2 026	755	5.6	82.9	1.2	673	495	5.7	2.10	0.1	1.9	86.0	71 400	283	1.4	18.0
West Haverstraw village	9 181	2 920	2 917	5.2	65.1	1.4	2 823	1 720	5.2	3.04	1.5	7.2	66.3	46 100	261	0.5	5.8
West Hempstead (CDP)	18 536	6 061	6 054	6.5	85.6	0.7	5 978	5 205	6.5	2.82	0.7	1.8	85.8	55 300	310	0.4	2.8
West Hills (CDP)	6 071	1 901	1 895	7.2	95.1	0.4	1 872	1 746	7.2	3.12	0.3	0.7	95.3	73 700	374	0.2	2.3
West Hurley (CDP)	2 382	849	832	6.4	90.6	1.6	771	664	6.5	2.94	1.4	0.9	91.2	51 500	254	2.2	5.3
West Islip (CDP)	29 533	8 477	8 464	6.6	91.3	0.5	8 299	7 575	6.7	3.46	0.4	2.0	91.8	43 700	303	0.8	4.2
Westmere (CDP)	6 881	2 702	2 701	5.4	70.8	0.5	2 637	1 601	5.4	2.26	0.5	1.1	71.3	44 000	316	0.6	2.0
West Nyack (CDP)	8 553	2 489	2 489	6.9	82.7	0.7	2 435	1 965	7.0	3.47	0.7	3.2	83.5	76 100	301	0.7	3.3
Weston Mills (CDP)	1 837	695	693	5.3	70.3	1.3	672	529	5.3	2.41	1.2	2.1	71.0	33 700	143	-	5.9
West Point (CDP)	8 105	1 053	1 053	6.3	57.8	0.7	1 026	4	6.3	3.71	0.7	0.8	58.9	...	318	-	-
West Sand Lake (CDP)	2 153	745	721	6.0	80.4	1.0	689	561	6.0	2.90	0.7	1.6	81.4	39 500	183	1.1	5.9
West Sayville (CDP)	8 185	2 596	2 592	5.9	83.6	0.3	2 543	1 966	5.9	2.98	0.3	2.2	83.6	38 000	309	1.1	1.4
Westvale (CDP)	6 169	2 150	2 150	6.2	98.1	0.1	2 126	2 037	6.2	2.43	0.1	1.0	98.2	44 300	199	0.4	2.2
Whitehall village	3 241	1 336	1 313	5.8	63.9	3.7	1 185	780	5.9	2.37	3.0	2.5	66.2	22 400	134	1.3	7.3
White Plains city	46 999	19 705	19 168	4.3	40.5	3.2	18 902	7 313	4.3	2.05	3.0	4.2	40.7	88 000	279	0.2	1.2
Whitesboro village	4 460	1 839	1 839	5.3	62.8	1.0	1 780	1 108	5.4	2.15	1.0	1.6	63.1	28 300	140	0.7	2.3
Whitney Point village	1 093	422	422	5.6	54.7	2.8	389	252	5.6	2.51	2.6	3.6	56.2	32 900	159	2.1	11.1
Willard (CDP)	1 339	263	256	6.0	71.1	0.8	231	174	6.0	2.14	0.9	0.4	72.3	21 900	158	2.9	14.9
Williamson (CDP)	1 768	660	653	6.0	73.8	2.3	610	465	6.1	2.52	2.1	2.3	76.6	33 100	171	1.9	13.7
Williamsville village	6 017	2 675	2 674	5.3	62.9	0.3	2 585	1 480	5.4	1.94	0.2	0.6	63.9	46 200	254	0.7	3.4
Williston Park village	8 216	2 740	2 740	6.1	74.6	0.9	2 713	2 089	6.2	2.59	0.9	1.2	74.8	58 200	348	0.2	1.4
Wilson village	1 259	487	473	5.9	84.4	1.1	451	353	5.9	2.51	0.9	0.7	85.4	36 600	141	0.3	6.7
Windsor village	1 155	416	416	5.9	64.9	2.6	394	256	5.9	2.60	1.8	3.3	66.5	37 000	165	[illegible]	6.1
Wolcott village	1 496	649	647	5.9	67.9	4.2	571	402	6.0	2.28	3.2	1.8	70.2	24 700	149	[illegible]	7.7
Woodbury (CDP)	7 043	2 156	2 152	7.0	95.4	-	2 062	1 526	7.1	[illegible]	-	0.3	95.3	124 2[illegible]	49[illegible]	[illegible]	1.3
Woodmere (CDP)	17 205	5 432	5 415	8.0	89.5	0.4	5 369	4 768	8.0	3.25	0.4	0.7	89.7	89 300	315	[illegible]	1.6
Woodstock (CDP)	2 280	1 253	1 227	4.7	77.0	1.6	1 045	601	4.8	1.63	1.5	2.1	78.9	52 800	229	1.0	6.4
Wurtsboro village	1 128	483	420	5.2	70.2	2.1	382	271	5.2	2.74	2.4	4.7	71.7	37 000	210	3.6	9.0
Wyandanch (CDP)	13 215	3 672	3 670	6.1	87.6	2.0	3 380	2 455	6.2	3.74	0.8	8.5	87.4	40 000	308	3.9	6.3
...onkers city	195 351	75 907	75 859	4.3	30.0	2.8	73 892	25 994	4.3	[illegible]	2.[illegible]	4.5	30.4	70 2[illegible]	254	[illegible]	2.2
...orkshire (CDP)	1 236	501	500	4.9	48.4	0.8	468	367	4.9	[illegible]	0.4	1.5	49.6	35 900	140	2.5	4.7
...orktown Heights (CDP)	7 696	2 245	2 241	7.1	90.2	0.4	2 215	1 981	7.1	3.50	0.3	1.3	90.3	71 500	263	[illegible]	2.1
...orkville village	3 115	1 258	1 257	5.6	62.3	1.9	1 204	857	5.6	2.22	2.0	1.2	63.2	26 000	139	1.0	7.5
...oungstown village	2 191	764	759	5.8	82.7	0.1	732	540	5.8	2.70	0.1	2.2	83.1	47 600	220	1.8	4.5
...ena (CDP)	1 435	483	465	7.6	94.4	1.5	427	381	7.7	3.36	1.2	1.4	94.6	60 200	321	3.3	-
...OUNTIES																	
...bany	285 909	115 733	114 938	5.4	53.2	2.3	106 589	59 825	5.5	2.2[illegible]	1.6	1.7	55.7	41 900	187	1.3	6.0
...egany	51 742	20 737	17 869	6.0	74.9	2.9	16 505	12 296	6.1	2.42	2.1	2.5	75.0	26 200	134	[illegible]	[illegible]
...onx	1 168 972	451 118	450 910	3.7	12.2	4.1	429 257	62 883	3.7	2.29	4.0	11.0	12.7	48 200	195	0.9	4.[illegible]
...oome	213 648	81 982	81 052	5.5	61.6	2.2	76 809	50 223	5.6	2.33	1.9	1.8	62.9	40 900	175	1.3	5.9
...ttaraugus	85 697	34 851	31 678	5.8	72.3	3.6	29 280	21 536	5.9	2.42	2.5	2.4	73.9	27 400	132	[illegible]	8.7
...yuga	79 894	30 955	29 019	5.8	67.4	2.7	26 896	19 133	5.9	2.44	2.3	2.5	69.1	[illegible]	16[illegible]	1.3	8.7
...autauqua	146 925	60 905	56 532	5.6	68.2	2.2	52 817	37 415	5.7	2.23	1.8	1.9	69.8	21 900	151	[illegible]	7.0
...emung	97 656	36 706	36 525	5.6	75.2	1.6	34 521	24 008	5.7	2.37	1.4	1.8	76.2	33 600	164	1.5	[illegible]
...enango	49 344	18 864	18 269	5.8	67.6	3.6	16 858	12 558	5.8	2.48	2.9	2.7	68.2	30 100	154	1.7	6.7
...nton	80 750	28 092	26 552	5.3	63.0	3.9	24 896	15 788	5.3	2.64	3.0	3.5	63.5	35 400	175	1.8	5.0
...lumbia	59 487	25 948	24 750	5.6	70.2	2.5	21 325	14 990	5.6	2.34	2.0	2.0	69.5	38 500	156	1.8	7.5
...rtland	48 820	17 683	17 240	5.7	64.6	2.4	16 324	10 491	5.7	2.40	1.9	2.1	65.3	35 400	164	1.6	5.5
...laware	46 824	22 746	19 498	5.7	71.8	3.0	16 483	12 208	5.9	2.32	2.0	2.4	72.4	30 200	150	[illegible]	9.5
...tchess	245 055	86 852	85 336	5.5	69.2	1.7	80 642	53 591	5.6	2.48	1.5	2.3	70.0	49 300	223	1.3	5.3
...ie	1 015 472	389 038	387 296	5.6	56.5	1.6	365 217	228 464	5.6	2.35	1.3	1.9	58.5	40 100	155	0.8	6.5
...sex	36 176	19 124	14 919	5.5	74.4	3.9	12 879	9 588	5.7	2.35	2.7	2.7	75.4	30 900	153	2.1	15.5
...anklin	44 929	20 331	16 474	5.4	71.1	5.3	15 127	10 632	5.5	2.42	4.1	3.7	72.3	27 100	134	1.7	8.4
...lton	55 153	25 507	21 840	5.6	62.7	3.0	20 259	14 526	5.6	2.31	2.7	2.5	64.4	28 400	123	[illegible]	[illegible]
...nesee	59 400	21 264	21 084	5.8	71.9	2.7	20 111	14 737	5.9	2.51	2.2	2.3	72.0	35 500	176	1.0	4.6
...eene	40 861	21 350	18 633	5.4	71.7	2.9	14 919	10 864	5.4	2.29	2.1	2.3	72.0	35 000	158	2.4	12.6
...milton	5 034	7 062	2 472	5.4	82.5	4.8	1 973	1 573	5.6	2.22	3.6	2.4	84.5	32 900	123	4.3	14.0
...rkimer	66 714	28 526	24 954	5.8	67.5	2.5	23 682	16 956	5.8	2.38	2.2	2.2	68.2	26 700	123	[illegible]	5.5
...fferson	88 151	42 012	33 222	5.8	68.4	3.2	30 792	21 056	5.8	2.42	2.5	2.4	69.4	27 900	151	1.8	[illegible]
...gs	2 230 936	881 367	880 840	4.0	12.7	4.0	828 257	193 560	4.0	2.27	3.5	8.9	13.2	50 500	198	1.3	3.0
...s	25 035	11 604	8 722	6.2	76.3	4.4	8 051	6 467	6.2	2.71	3.3	3.6	76.7	26 100	125	1.6	9.2
...ngston	57 006	20 301	19 276	5.8	72.8	2.7	18 252	13 233	5.9	2.52	[illegible]	2.0	73.5	38 200	172	[illegible]	[illegible]
...dison	65 150	23 918	22 188	5.8	72.9	2.7	20 805	15 428	5.8	2.54	[illegible]3	2.8	73.8	30 900	164	1.3	8.6
...nroe	702 238	264 352	263 820	5.6	71.3	1.5	252 217	159 543	5.[illegible]	2.34	1.2	1.7	72.7	44 000	211	1.0	4.8
...ntgomery	53 439	21 192	21 120	5.7	55.7	2.8	19 845	13 271	5.7	2.29	2.4	1.8	57.0	27 600	106	1.3	[illegible]6
...ssau	1 321 582	434 045	431 944	6.4	78.8	0.8	423 401	334 208	6.4	2.84	0.8	2.2	79.3	56 600	313	0.4	3.0
...w York	1 428 285	754 796	753 756	3.1	7.8	6.3	704 502	54 785	3.1	1.51	5.6	7.6	8.2	92 400	239	4.0	2.8
...agara	227 354	85 209	84 509	5.4	69.0	1.7	80 258	55 213	5.5	2.42	1.6	2.0	70.3	38 000	163	1.0	6.3
...eida	253 466	95 834	93 265	5.6	61.7	2.0	88 000	57 442	5.6	[illegible]	1.8	2.2	63.4	33 000	150	1.0	7.1
...ondaga	463 920	177 107	175 511	5.6	67.0	1.6	165 677	102 415	5.7	2.34	1.4	1.9	65.7	39 600	185	[illegible]	6.3

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Table 1a. **Summary of General Housing Characteristics for Towns/Townships: 1980—Con.**

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Towns/Townships of 1,000 or More	Total persons	Total housing units	Year-round housing units: Total	Median rooms	Percent: One unit at address	Percent: Lacking complete plumbing for exclusive use	Occupied: Total	Owner	Median rooms	Median number of persons	Percent: Lacking complete plumbing for exclusive use	Percent: With 1.01 or more persons per room	Percent: One unit at address	Median value (dollars) specified owner	Median contract rent (dollars) specified renter	Vacancy rate: Homeowner	Vacancy rate: Rental
Conewango town	1 578	534	457	6.1	79.0	20.4	429	341	6.2	3.11	20.3	10.5	80.0	24 200	127	0.9	4.3
Conklin town	6 204	2 105	2 101	5.6	76.7	0.9	2 043	1 714	5.6	2.76	0.8	2.9	76.8	40 200	185	1.4	3.5
Conquest town	1 628	668	526	5.8	75.9	6.1	488	415	5.8	3.13	4.9	3.5	75.2	24 000	127	2.4	1.4
Constable town	1 218	400	396	5.8	81.3	6.6	357	307	5.8	3.17	5.0	4.8	81.2	26 200	108	1.9	2.0
Constantia town	4 312	1 836	1 463	5.6	79.8	4.2	1 376	1 145	5.7	2.81	3.2	4.4	80.5	32 300	154	1.5	4.9
Copake town	2 854	1 899	1 648	5.5	89.9	1.0	970	714	5.7	2.33	1.0	2.5	85.3	43 400	186	3.8	2.3
Corinth town	5 216	2 226	1 958	5.5	69.9	3.2	1 812	1 396	5.6	2.46	2.5	3.3	70.4	28 500	135	2.0	6.7
Corning town	6 846	2 470	2 463	5.8	87.0	1.3	2 390	2 032	5.8	2.54	1.3	2.1	87.6	32 600	170	0.9	5.0
Cornwall town	10 774	4 060	4 016	5.7	76.2	1.0	3 844	2 590	5.7	2.44	1.0	1.7	76.6	46 400	224	0.8	3.8
Cortlandt town	35 705	12 247	11 994	5.8	78.2	0.7	11 576	8 541	5.9	2.61	0.6	2.0	78.7	62 900	267	0.9	3.8
Cortlandville town	8 299	3 003	2 996	5.8	73.3	1.5	2 866	2 066	5.9	2.51	0.8	1.8	73.8	40 900	169	1.4	5.1
Coventry town	1 271	468	431	5.9	71.9	4.4	381	325	6.0	3.11	3.7	5.8	73.0	28 000	129	[illegible]	5.1
Covert town	2 189	1 029	848	6.1	77.0	3.1	800	663	6.2	2.36	2.6	2.0	77.5	31 100	154	1.0	7.4
Covington town	1 075	350	349	6.3	83.7	2.3	333	278	6.4	3.04	1.8	2.4	83.5	35 000	153	1.1	6.8
Coxsackie town	6 018	2 225	2 133	5.2	62.6	2.4	1 970	1 340	5.3	2.35	1.7	2.5	63.7	31 800	151	1.9	6.5
Crawford town	4 910	1 731	1 678	5.7	81.4	0.8	1 578	1 211	5.8	2.82	0.9	2.3	81.5	40 700	209	1.3	4.9
Croghan town	2 824	1 115	928	6.2	78.2	4.2	873	717	6.2	2.93	3.6	5.6	78.6	27 100	132	0.6	4.9
Crown Point town	1 837	842	688	5.9	77.2	7.1	633	483	5.9	2.53	5.2	2.1	77.3	27 700	152	1.8	4.5
Cuba town	3 428	1 572	1 345	6.0	74.3	1.3	1 239	908	6.0	2.37	1.5	1.9	75.7	28 300	133	1.4	9.8
Danby town	2 449	888	876	5.9	78.8	3.2	831	653	5.9	2.64	2.9	2.5	79.4	35 500	187	0.3	6.3
Dannemora town	4 717	1 130	875	5.8	78.7	3.1	791	623	5.8	2.54	2.4	3.5	80.3	20 700	149	1.3	9.7
Dansville town	1 455	579	538	5.9	76.0	4.6	479	421	6.0	2.86	2.3	2.3	77.9	27 600	124	0.7	7.9
Danube town	1 081	375	371	5.8	68.5	2.4	346	287	5.8	2.70	1.7	4.0	69.5	25 000	141	2.4	6.3
Darien town	2 950	947	930	6.0	83.4	3.4	871	729	6.1	3.16	2.3	3.7	85.4	37 800	160	0.7	14.5
Davenport town	1 971	922	795	5.6	72.1	2.4	722	566	5.6	2.35	2.4	3.5	72.7	33 100	151	4.7	9.8
Dayton town	1 981	736	733	6.1	82.4	3.8	673	554	6.2	2.52	1.6	3.0	82.3	25 500	118	0.5	4.0
Deerfield town	3 934	1 215	1 215	6.0	94.6	0.7	1 189	1 116	6.0	2.92	0.3	2.2	95.6	36 700	178	0.4	16.1
Deerpark town	5 633	2 445	2 189	5.1	72.2	1.5	2 046	1 688	5.2	2.40	1.3	2.4	73.7	34 300	177	1.6	14.6
De Kalb town	2 130	743	738	6.7	81.4	6.5	685	531	6.8	2.77	5.7	2.9	81.2	20 800	125	1.7	5.5
Delaware town	2 783	1 171	1 102	5.7	78.7	1.1	879	670	5.8	2.26	0.9	1.0	80.9	35 400	160	2.0	3.9
Delhi town	5 295	1 596	1 501	5.7	65.4	2.5	1 382	914	5.8	2.32	1.9	1.8	66.4	36 600	171	2.4	7.9
Denmark town	2 448	829	782	6.8	77.6	1.9	733	634	6.8	3.10	1.8	3.3	78.6	24 800	126	2.0	15.4
Deposit town	1 810	873	707	5.8	71.7	4.1	637	483	5.9	2.38	1.3	2.8	71.7	29 300	144	4.5	12.5
De Ruyter town	1 349	792	515	6.1	69.3	1.9	456	349	6.1	2.47	1.3	2.9	70.0	26 300	118	4.4	16.4
De Witt town	26 868	9 573	9 566	6.0	73.3	1.7	9 211	6 810	6.0	2.40	1.0	1.3	74.1	47 300	218	0.8	4.6
Diana town	1 709	1 156	625	5.6	77.6	4.6	567	451	5.7	2.54	4.4	4.2	79.9	19 700	99	1.5	10.4
Dickinson town Broome County	5 594	2 048	2 047	5.7	70.0	1.2	1 987	1 470	5.7	2.21	1.1	1.0	70.8	40 300	174	0.9	5.0
Dix town	4 138	1 641	1 612	5.8	69.9	2.5	1 475	1 068	6.0	2.37	1.9	2.6	72.5	30 600	157	1.9	8.7
Dover town	7 261	2 540	2 474	5.0	57.4	3.1	2 254	1 592	5.0	2.46	2.5	4.5	57.6	44 700	187	1.5	6.0
Dryden town	12 156	4 705	4 681	5.4	61.7	1.9	4 467	3 049	5.4	2.37	1.6	2.1	62.6	43 700	184	1.1	6.3
Duanesburg town	4 729	1 768	1 624	5.9	88.7	3.3	1 554	1 328	5.9	2.80	2.0	[illegible]	89.3	37 200	169	1.2	7.8
Dunkirk town	1 584	535	525	5.7	79.4	0.8	504	431	5.7	2.28	0.4	1.8	80.2	45 000	180	2.2	3.8
Durham town	2 283	1 328	1 048	5.6	78.1	3.7	808	643	5.7	2.37	1.7	3.6	77.5	36 500	155	2.0	9.8
Eagle town	1 216	518	478	6.2	82.5	4.2	397	325	6.3	2.72	2.0	3.0	82.9	25 000	128	2.4	6.5
East Bloomfield town	3 327	1 144	1 131	6.2	76.0	1.9	1 077	789	6.3	2.82	[illegible]	1.6	77.4	45 600	[illegible]	[illegible]	8.0
Eastchester town	32 648	12 559	12 546	5.5	53.0	1.2	12 333	7 324	5.5	[illegible]	1.2	[illegible]	53.4	[illegible]	[illegible]	0.8	[illegible]
East Fishkill town	18 091	5 700	5 580	6.4	90.3	0.8	5 363	4 714	6.4	3.36	0.6	2.2	[illegible]	58 400	250	[illegible]	[illegible]
East Greenbush town	12 913	4 600	4 597	5.5	77.4	0.6	4 462	3 361	5.5	[illegible]	0.6	1.8	79.2	[illegible]	236	1.6	[illegible]
East Hampton town	14 029	12 971	7 581	5.5	85.9	0.5	5 760	4 534	5.4	2.09	0.5	2.0	87.7	48 400	239	4.7	16.0
Easton town	2 020	766	719	6.3	82.1	4.0	651	539	6.4	2.86	3.1	2.3	84.6	31 600	139	1.2	6.7
Eaton town	5 182	1 562	1 251	5.8	72.8	4.4	1 131	846	5.9	2.52	2.5	2.7	74.1	28 000	155	0.8	12.6
Eden town	7 327	2 407	2 346	6.0	86.5	1.3	2 284	1 938	[illegible]	2.92	[illegible]	[illegible]	85.9	43 300	141	0.6	[illegible]
Edinburg town	1 126	1 646	438	5.1	80.4	6.4	386	336	5.2	2.46	4.9	4.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Edmeston town	1 732	637	587	6.6	78.9	2.4	544	416	6.7	2.48	2.6	1.5	85.7	25 900	115	1.0	[illegible]
Edwards town	1 208	469	416	6.2	84.1	7.2	372	298	6.3	2.98	4.0	3.8	85.2	18 700	111	2.5	7.5
Elba town	2 487	829	817	6.1	82.6	6.1	759	625	6.2	[illegible]	4.6	4.0	84.6	[illegible]	156	[illegible]	9.5
Elbridge town	5 885	2 212	2 125	5.8	69.8	1.4	2 011	1 633	5.8	2.52	1.2	2.1	70.6	37 400	164	0.6	4.9
Elizabethtown town	1 267	663	534	5.6	76.4	3.4	469	328	5.8	2.14	3.0	0.6	77.4	30 000	154	2.4	14.5
Ellenburg town	1 751	862	647	5.6	79.8	9.9	545	474	5.8	[illegible]	[illegible]	4.4	[illegible]	[illegible]	105	[illegible]	[illegible]
Ellery town	4 617	2 256	1 794	5.6	79.9	2.2	1 706	1 426	5.5	2.35	1.5	1.8	[illegible]	26 100	152	[illegible]	5.7
Ellicott town	9 979	4 050	4 001	5.6	76.0	1.3	3 790	2 862	5.7	2.28	[illegible]	[illegible]	77.4	[illegible]	[illegible]	[illegible]	[illegible]
Ellicottville town	1 677	1 719	816	5.7	71.7	2.3	581	411	6.0	2.41	1.4	2.6	76.8	31 000	154	4.0	9.6
Ellington town	1 690	578	571	6.0	78.8	6.0	520	440	6.1	3.07	3.3	4.4	80.4	[illegible]	128	[illegible]	[illegible]
Ellisburg town	3 212	1 560	1 154	6.6	81.6	3.3	1 048	843	6.6	2.76	2.8	2.6	82.2	[illegible]	[illegible]	[illegible]	[illegible]
Elma town	10 574	3 450	3 435	6.2	87.4	1.0	3 368	2 937	6.2	2.89	[illegible]	1.7	87.6	[illegible]	177	[illegible]	[illegible]
Elmira town	7 635	3 034	3 016	6.2	88.8	0.8	2 913	2 436	6.3	2.27	0.6	[illegible]	89.4	43 200	[illegible]	1.3	[illegible]
Enfield town	2 375	857	856	5.4	66.2	2.5	801	638	5.4	2.67	2.4	2.9	66.5	35 200	[illegible]	[illegible]	5.8
Ephratah town	1 564	603	543	5.6	74.4	6.3	506	456	5.6	2.48	5.5	[illegible]	73.5	22 400	126	[illegible]	[illegible]
Erin town	2 037	672	659	5.4	74.8	2.7	625	554	5.4	3.13	2.1	4.0	74.9	31 800	142	[illegible]	[illegible]
Erwin town	6 445	2 571	2 562	5.6	74.4	0.7	2 459	1 815	5.6	[illegible]	0.7	[illegible]	75.7	[illegible]	226	[illegible]	[illegible]
Esopus town	7 605	2 864	2 768	5.5	76.7	2.9	2 479	1 895	[illegible]	2.43	1.6	[illegible]	78.2	[illegible]	[illegible]	[illegible]	[illegible]
Esperance town	1 951	732	701	5.7	72.2	3.0	652	534	5.9	2.64	[illegible]	[illegible]	72.4	[illegible]	162	[illegible]	[illegible]
Evans town	17 961	6 771	6 091	5.6	84.1	1.5	5 828	4 767	5.6	2.79	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fabius town	1 811	663	614	6.6	83.7	1.8	591	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fairfield town	1 455	463	459	6.4	79.7	2.8	436	363	6.3	3.05	[illegible]	[illegible]	82.4	38 000	[illegible]	[illegible]	[illegible]
Fallsburg town	9 862	7 420	3 868	4.8	55.8	2.8	3 012	1 884	[illegible]	2.25	3.0	2.5	79.4	26 900	[illegible]	0.5	3.9
Farmington town	8 933	2 953	2 943	5.9	73.3	0.9	2 851	2 252	[illegible]	[illegible]	[illegible]	4.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fayette town	3 561	1 513	1 268	6.2	84.8	3.1	1 179	[illegible]	6.2	[illegible]	[illegible]	[illegible]	73.8	45 900	235	[illegible]	[illegible]
Fenner town	1 580	546	539	5.4	63.8	3.7	497	[illegible]	5.4	[illegible]	[illegible]	[illegible]	85.3	[illegible]	[illegible]	[illegible]	[illegible]
Fenton town	7 400	2 673	2 648	5.5	71.6	1.2	2 542	[illegible]	5.5	[illegible]	[illegible]	[illegible]	72.2	[illegible]	[illegible]	[illegible]	[illegible]
Fine town	2 243	1 204	836	5.4	79.9	3.9	765	624	5.4	[illegible]	[illegible]	[illegible]	80.5	[illegible]	[illegible]	[illegible]	[illegible]
Fishkill town	15 506	5 581	5 540	5.0	72.5	1.1	5 207	3 244	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fleming town	2 394	942	839	6.0	86.3	1.1	804	[illegible]	6.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	268	[illegible]	[illegible]
Florida town	2 578	919	918	5.7	78.6	2.7	867	[illegible]	5.8	[illegible]	[illegible]	[illegible]	86.8	[illegible]	[illegible]	[illegible]	[illegible]
Floyd town	3 863	1 231	1 231	5.6	70.5	1.3	1 198	1 046	5.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Table 1a. **Summary of General Housing Characteristics for Towns/Townships: 1980—Con.**

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Towns/Townships of 1,000 or More

Towns/Townships of 1,000 or More	Total persons	Total housing units	Year-round housing units: Total	Median rooms	Percent: One unit at address	Percent: Lacking complete plumbing for exclusive use	Occupied: Total	Owner	Median rooms	Median number of persons	Percent: Lacking complete plumbing for exclusive use	Percent: With 1.01 or more persons per room	Percent: One unit at address	Median value (dollars), specified owner	Median contract rent (dollars), specified renter	Vacancy rate: Homeowner	Vacancy rate: Rental
Forestport town	1 380	1 653	569	5.3	85.6	3.7	521	431	5.4	2.30	3.8	2.3	84.8	22 200	126	6.3	3.2
Fort Ann town	4 425	1 629	1 098	5.8	84.2	9.2	949	762	5.9	2.73	5.0	4.1	83.1	33 000	143	1.6	12.6
Fort Covington town	1 804	643	639	6.0	84.0	6.1	571	461	6.1	2.92	3.3	3.3	85.1	26 600	106	5.1	6.0
Fort Edward town	6 479	2 254	2 232	5.9	72.3	3.0	2 080	1 539	5.9	2.67	1.7	3.0	74.4	27 100	150	1.5	6.7
Fowler town	1 721	728	593	5.8	79.3	5.4	536	446	6.0	3.02	4.1	3.7	80.8	23 300	126	2.4	16.7
Frankfort town	7 686	2 816	2 811	5.7	66.5	2.5	2 682	2 047	5.7	2.54	2.3	1.6	67.9	31 300	131	0.5	9.3
Franklin town, Delaware County	2 431	1 037	1 012	6.3	75.2	2.8	846	677	6.4	2.47	2.1	2.4	77.2	31 100	154	1.0	11.1
Franklinville town	3 102	1 418	1 275	6.0	73.8	3.1	1 127	857	6.1	2.34	2.2	1.4	76.2	25 400	127	1.4	15.9
Freedom town	1 840	667	594	5.8	73.2	2.0	569	472	5.8	3.04	1.9	3.5	73.6	30 200	152	1.0	3.0
Fremont town, Sullivan County	1 346	843	549	5.9	83.2	3.1	499	382	5.9	2.21	2.8	2.6	82.8	29 900	125	1.8	7.9
Friendship town	2 164	850	783	6.3	75.1	2.2	725	547	6.4	2.50	1.9	4.1	75.7	18 800	136	1.1	4.3
Fulton town	1 394	580	491	5.7	78.4	8.6	429	359	5.9	2.53	6.5	4.2	78.1	27 100	124	1.4	9.1
Gaines town	2 692	1 009	994	5.9	74.2	3.4	924	767	6.0	2.44	2.5	2.6	76.9	31 900	176	1.3	4.3
Gainesville town	2 133	766	785	6.2	81.1	2.5	720	580	6.3	2.65	1.9	1.4	82.4	26 700	150	2.2	11.4
Galen town	4 480	1 675	1 628	6.2	76.8	4.5	1 509	1 161	6.3	2.55	4.0	3.4	77.3	24 500	163	1.8	7.7
Gallatin town	1 292	709	600	5.4	85.2	2.0	465	397	5.5	2.29	2.4	2.8	84.3	42 200	179	1.7	4.2
Galway town	3 016	1 442	1 043	5.8	85.1	3.0	986	848	5.9	2.89	2.3	3.2	85.5	37 200	199	1.6	11.5
Gardiner town	3 552	1 573	1 436	5.3	74.0	2.4	1 278	916	5.4	2.41	1.1	2.9	73.8	43 300	203	1.3	5.5
Gates town	29 756	10 320	10 319	5.7	83.6	0.6	10 062	7 908	5.7	2.70	0.5	1.4	84.8	44 600	251	0.3	3.5
Geddes town	16 526	6 849	6 845	5.9	77.3	0.7	6 669	5 256	6.0	2.39	0.7	1.4	78.2	41 600	172	0.5	5.5
Genesee town	1 787	665	613	5.8	73.7	2.6	571	480	5.9	2.90	1.8	4.0	74.3	31 200	152	2.0	4.2
Geneseo town	6 673	2 200	2 036	5.8	72.3	1.1	1 946	1 092	5.9	2.48	0.9	1.8	72.1	46 900	209	1.0	2.1
Geneva town	3 077	1 294	1 193	5.7	76.3	1.0	1 159	848	5.7	2.33	0.8	1.6	76.4	46 300	239	0.8	2.8
Genoa town	1 921	831	723	6.4	76.9	5.1	648	531	6.5	2.55	3.2	2.2	79.5	30 400	130	0.9	17.0
German Flatts town	14 981	5 646	5 640	5.8	69.5	1.6	5 378	3 670	5.8	2.37	1.3	2.1	70.2	25 600	126	1.3	3.4
Germantown town	1 922	866	852	5.8	77.6	3.3	722	536	5.8	2.24	2.8	1.7	77.7	37 700	160	1.3	11.8
Gerry town	2 022	652	620	5.8	75.5	1.6	574	493	5.8	2.90	1.4	3.7	76.5	31 300	150	1.2	11.0
Ghent town	4 636	1 625	1 799	5.8	68.9	2.0	1 656	1 241	5.8	2.43	1.3	1.9	69.3	39 500	171	1.4	5.3
Gilboa town	1 076	728	530	5.6	74.5	8.7	388	318	5.9	2.41	4.4	1.8	76.0	31 800	151	3.0	2.8
Glen town	1 893	694	686	6.0	74.3	3.8	638	507	6.0	2.59	3.3	2.2	75.4	24 600	140	0.8	3.0
Glenville town	28 519	10 057	10 054	6.1	85.5	0.8	9 840	8 340	6.1	2.51	0.8	0.7	86.0	40 100	197	0.7	4.2
Gorham town	3 598	1 710	1 366	5.9	85.5	3.0	1 245	1 011	6.0	2.51	2.2	2.1	88.0	34 000	179	2.5	3.3
Goshen town	10 463	3 247	3 179	6.0	77.2	2.8	3 069	2 098	6.0	2.76	2.4	2.3	77.7	49 300	233	0.9	3.7
Gouverneur town	6 629	2 565	2 551	5.7	68.1	3.4	2 394	1 559	5.7	2.34	2.3	2.4	69.2	23 700	130	1.7	6.1
Grafton town	1 665	825	577	5.4	83.4	6.8	544	478	5.4	2.78	6.3	4.8	84.6	30 700	158	0.6	4.3
Granby town	6 341	2 257	2 212	5.3	65.8	2.6	2 101	1 762	5.4	2.73	2.1	3.8	66.1	36 500	181	1.1	9.8
Grand Island town	16 770	5 629	5 611	6.1	81.4	0.5	5 416	4 257	6.1	2.88	0.4	1.3	82.6	52 000	256	0.6	7.7
Granville town	5 566	2 308	1 991	6.0	74.1	6.0	1 795	1 322	6.1	2.59	5.2	4.3	75.1	29 700	134	1.7	10.1
Great Valley town	2 014	836	770	5.6	77.5	3.1	665	569	5.8	2.49	1.8	2.1	78.9	26 900	109	0.5	13.5
Greece town	81 367	29 531	29 453	5.8	82.4	0.5	28 950	20 975	5.8	2.45	0.5	0.8	82.6	46 400	247	0.4	2.1
Greenburgh town	82 861	30 154	30 138	5.6	60.6	1.6	29 682	18 244	5.6	2.41	1.5	2.1	60.7	85 400	308	0.7	1.5
Greene town	5 729	2 066	2 069	5.8	72.0	3.0	1 944	1 486	5.8	2.61	2.6	2.3	72.0	35 600	167	1.6	5.0
Greenfield town	5 104	1 973	1 781	5.4	68.0	2.6	1 650	1 340	5.4	2.87	1.8	4.3	68.7	39 100	186	1.9	10.1
Green Island town	2 696	1 132	1 132	5.8	20.9	3.3	1 042	488	5.8	2.17	3.5	2.4	21.5	27 000	123	0.4	4.2
Greenport town	4 029	1 627	1 619	5.4	76.0	1.7	1 540	1 166	5.4	2.32	1.2	1.5	76.5	36 700	155	2.0	4.1
Greenville town, Greene County	2 849	1 349	1 276	5.4	75.2	2.2	1 072	827	5.4	2.26	2.0	2.1	75.7	36 800	164	1.7	3.9
Greenville town, Orange County	2 065	783	717	5.8	82.0	2.4	676	578	5.8	2.81	2.4	2.5	83.4	44 300	216	1.2	20.3
Greenwich town	4 276	1 728	1 648	6.2	71.2	3.2	1 508	1 104	6.2	2.42	2.4	2.3	71.8	30 900	135	2.3	9.0
Greig town	1 115	925	365	5.3	79.5	6.6	350	302	5.3	2.61	6.3	5.7	79.4	23 800	125	0.3	4.0
Groton town	5 213	1 883	1 875	5.9	70.2	2.9	1 777	1 332	6.0	2.61	2.3	1.7	71.4	31 600	154	1.6	4.9
Groveland town	2 140	617	523	6.2	87.6	3.8	487	353	6.2	2.47	3.1	2.1	88.3	36 400	184	1.4	6.3
Guilderland town	26 515	9 813	9 798	5.4	71.4	0.8	9 513	5 850	5.4	2.28	0.7	1.3	71.8	44 400	281	1.1	2.8
Guilford town	2 442	1 027	942	6.2	76.0	3.4	829	706	6.2	2.48	2.9	2.2	77.6	26 700	135	2.8	4.7
Hadley town	1 351	696	469	5.8	87.0	4.5	440	377	5.8	2.70	3.9	3.0	87.0	33 500	126	1.3	8.7
Halfmoon town	11 860	4 678	4 593	5.0	54.7	1.1	4 241	3 081	5.1	2.43	1.1	2.4	57.4	44 000	245	1.6	15.4
Hamburg town	53 270	18 674	18 633	5.6	74.1	0.9	18 126	13 245	5.6	2.60	0.8	1.9	73.7	42 700	210	0.7	3.6
Hamden town	1 276	635	474	6.0	76.8	3.0	439	349	6.1	2.39	2.5	3.6	77.0	29 600	145	3.9	7.2
Hamilton town	6 027	1 760	1 750	6.1	69.3	1.7	1 618	1 064	6.2	2.39	1.4	1.5	69.8	32 200	170	2.0	8.1
Hamlin town	7 675	2 661	2 487	6.1	78.6	1.6	2 362	1 966	6.1	3.19	0.7	1.3	79.3	42 600	200	1.1	8.3
Hammond town	1 090	1 249	440	6.5	83.2	7.7	373	298	6.6	2.43	3.2	2.4	83.6	21 300	106	5.1	8.5
Hamptonburgh town	2 945	990	977	6.4	87.7	1.4	905	725	6.5	3.13	1.4	2.8	88.3	52 400	204	2.2	4.8
Hancock town	3 497	2 035	1 792	5.4	70.4	4.9	1 259	944	5.8	2.36	1.9	3.7	70.5	25 100	108	3.0	16.0
Hannibal town	4 027	1 369	1 366	5.7	70.0	3.9	1 265	1 068	5.8	2.90	3.0	3.2	70.7	32 100	155	0.9	9.2
Hanover town	7 876	3 398	3 010	5.9	74.9	1.8	2 842	2 195	5.9	2.38	1.4	1.6	76.1	32 500	152	1.0	8.9
Harmony town	2 121	773	694	6.0	82.4	3.6	678	561	6.0	2.90	3.2	2.7	82.2	26 200	140	0.5	0.8
Harpersfield town	1 495	714	546	6.1	73.1	4.6	509	383	6.2	2.40	3.5	2.8	74.1	30 200	173	2.3	7.4
Harrietstown town	5 604	3 239	2 573	4.7	50.5	3.1	2 340	1 211	4.8	2.01	2.8	2.2	52.6	32 400	157	1.1	11.7
Harrison town	23 046	7 403	7 365	5.6	48.6	2.1	7 206	4 229	5.6	2.57	2.1	2.4	48.5	125 800	324	0.5	1.1
Hartford town	1 742	590	588	6.2	81.1	3.2	517	429	6.1	3.19	2.9	3.9	81.0	32 200	151	5.3	8.3
Hartland town	4 105	1 348	1 343	6.1	85.9	2.8	1 288	1 120	6.1	2.93	2.1	2.6	85.9	35 600	162	1.4	6.1
Hartwick town	1 796	868	705	6.4	77.6	4.1	647	517	6.4	2.38	3.4	2.0	77.6	30 000	125	1.1	11.0
Hastings town	7 095	2 485	2 446	5.4	68.4	1.6	2 335	1 843	5.5	2.73	1.5	3.3	69.7	35 100	168	0.5	9.1
Haverstraw town	31 929	9 960	9 955	5.0	60.4	2.1	9 667	6 003	5.0	2.89	2.1	6.2	60.9	54 500	271	0.4	3.5
Hebron town	1 288	606	447	6.5	84.3	7.8	429	356	6.6	2.49	6.8	2.8	84.4	25 000	115	2.2	-
Hector town	3 793	1 637	1 376	6.2	84.4	5.1	1 269	1 102	6.3	2.55	4.2	3.4	84.6	29 700	150	1.0	7.7
Hempstead town	738 517	240 935	240 134	6.3	78.7	0.9	235 501	186 671	6.3	2.87	0.6	2.4	79.2	53 100	303	0.4	3.3
Henderson town	1 330	1 415	489	6.3	86.5	2.2	461	391	6.3	2.48	2.4	1.5	87.2	27 300	143	1.5	6.7
Henrietta town	36 134	11 015	11 014	5.8	83.2	0.7	10 763	7 150	5.9	2.87	0.5	1.7	83.5	42 800	263	0.7	2.6
Herkimer town	11 027	4 245	4 243	5.7	64.7	1.9	4 089	2 587	5.7	2.27	1.7	1.5	65.9	28 000	142	0.7	6.0
Hermon town	1 083	509	361	6.7	80.9	6.6	327	269	6.9	3.16	5.2	3.4	81.3	19 000	117	3.2	10.8
Highland town	1 878	1 271	1 112	5.1	83.5	1.1	742	602	5.4	2.14	0.8	2.7	85.6	40 400	157	5.8	9.7
Highlands town	14 004	3 471	3 404	5.4	56.7	2.6	3 230	1 258	5.4	2.62	1.9	2.4	57.6	38 900	233	1.0	2.7
Hillsdale town	1 648	936	829	5.7	80.7	[illegible]	625	459	5.8	2.26	1.9	2.1	79.7	42 600	179	3.2	8.3
Hinsdale town	2 162	913	774	5.3	62.9	2.8	716	604	5.4	2.78	2.1	4.2	65.1	30 300	140	1.3	15.2
Holland town	3 446	1 231	1 194	5.6	72.5	1.3	1 141	820	5.6	2.68	0.6	2.4	73.4	44 400	174	0.8	3.6

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Table 1a. Summary of General Housing Characteristics for Towns/Townships: 1980—Con

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Towns/Townships of 1,000 or More	Total persons	Total housing units	Year-round housing units: Total	Median rooms	Percent: One unit at address	Percent: Lacking complete plumbing for exclusive use	Occupied: Total	Owner	Median rooms	Median number of persons	Percent: Lacking complete plumbing for exclusive use	Percent: With 1.01 or more persons per room	Percent: One unit at address	Median value (dollars), specified owner	Median contract rent (dollars), specified renter	Vacancy rate: Homeowner	Vacancy rate: Rental
Maine town	5 262	1 865	1 864	5.6	71.9	1.7	1 741	1 516	5.6	2.73	1.5	2.2	73.6	40 900	176	1.6	18.2
Malone town	11 276	4 348	4 241	5.5	66.9	4.6	4 003	2 503	5.6	2.32	3.8	2.5	67.4	29 600	132	1.3	[illegible]
Malta town	6 968	2 932	2 601	5.4	67.9	0.9	2 395	1 591	5.4	2.62	0.8	1.4	69.1	50 900	283	3.6	[illegible]
Mamakating town	7 717	5 178	3 665	5.1	75.6	1.9	2 710	2 168	5.3	2.43	2.0	3.1	74.2	38 000	189	4.2	16.9
Mamaroneck town	29 017	10 540	10 534	5.9	59.5	1.2	10 394	6 172	5.9	2.42	1.2	2.3	59.6	117 400	284	0.4	[illegible]
Manchester town	9 002	3 385	3 372	5.6	63.0	1.7	3 226	2 488	5.6	2.40	1.5	1.7	63.6	34 300	174	1.9	[illegible]
Manhattan borough	1 428 285	754 796	753 756	3.1	7.8	6.3	704 502	54 785	3.1	1.51	5.6	7.6	8.2	92 400	239	4.0	[illegible]
Manheim town	3 634	1 423	1 417	5.9	64.1	2.5	1 344	929	5.9	2.34	2.2	1.8	64.7	23 600	88	2.2	[illegible]
Manlius town	28 489	9 866	9 864	6.4	82.6	0.5	9 633	7 462	6.4	2.63	0.5	1.1	82.8	48 900	228	1.1	[illegible]
Marathon town	1 804	640	640	6.2	70.0	1.9	601	442	6.2	2.73	1.8	3.7	71.4	30 300	156	1.6	[illegible]
Marbletown town	4 956	2 275	1 995	5.5	82.0	3.9	1 808	1 397	5.5	2.37	3.1	1.9	82.1	38 700	185	2.3	[illegible]
Marcellus town	6 180	2 192	2 180	6.4	81.8	1.7	2 061	1 597	6.4	2.71	1.3	1.3	82.7	46 100	186	1.8	[illegible]
Marcy town	6 456	1 836	1 836	5.7	81.8	3.9	1 760	1 497	5.8	2.64	2.2	1.6	82.6	39 200	169	1.0	[illegible]
Marilla town	4 861	1 514	1 511	6.1	82.5	0.8	1 474	1 324	6.1	3.19	0.7	2.0	83.4	54 200	148	0.6	[illegible]
Marion town	4 456	1 420	1 413	6.4	85.4	1.8	1 368	1 198	6.4	3.11	1.5	2.5	85.8	39 200	178	0.9	[illegible]
Marlborough town	7 055	2 661	2 565	5.5	68.9	2.1	2 415	1 656	5.6	2.59	2.1	2.7	70.6	45 800	191	0.5	[illegible]
Marshall town	2 131	730	729	6.3	74.5	1.8	696	537	6.3	2.83	1.9	2.7	73.7	31 400	155	1.5	[illegible]
Martinsburg town	1 494	545	504	6.5	79.6	5.4	456	361	6.6	3.01	2.9	3.3	80.0	24 600	124	0.6	[illegible]
Maryland town	1 690	802	732	6.0	74.9	3.8	618	471	6.1	2.36	3.1	1.8	76.5	27 000	134	1.7	[illegible]
Masonville town	1 156	509	455	5.8	80.7	4.8	368	305	6.0	2.72	1.6	3.3	80.4	27 800	110	2.9	[illegible]
Massena town	14 856	5 608	5 601	5.4	73.3	1.7	5 378	3 684	5.5	2.35	1.5	1.8	74.4	32 700	152	1.2	[illegible]
Mayfield town	5 439	2 650	1 983	5.4	79.0	3.1	1 880	1 641	5.5	2.50	3.0	3.6	79.5	28 500	137	1.4	[illegible]
Mendon town	5 434	1 943	1 943	6.6	84.3	1.1	1 865	1 425	6.6	2.62	1.1	0.8	85.1	59 600	233	2.5	[illegible]
Mentz town	2 441	850	836	5.9	70.5	3.9	792	625	5.9	2.77	3.8	3.4	71.1	28 400	143	1.9	[illegible]
Meredith town	1 374	573	530	6.5	80.9	2.3	450	360	6.5	2.65	2.2	1.8	83.3	32 700	165	2.2	[illegible]
Mexico town	4 790	1 777	1 651	5.7	69.4	2.6	1 534	1 169	5.8	2.88	2.2	3.8	69.9	33 300	163	1.6	[illegible]
Middleburgh town	2 980	1 358	1 233	5.7	70.7	3.4	1 094	816	5.7	2.32	2.9	2.7	71.1	33 700	152	2.4	[illegible]
Middlebury town	1 561	520	514	6.3	85.2	3.7	475	376	6.4	2.90	2.3	3.6	85.3	27 700	157	2.1	[illegible]
Middlefield town	1 870	762	672	6.2	79.6	4.6	603	470	6.3	2.39	4.1	1.5	80.8	33 400	175	2.1	[illegible]
Middlesex town	1 127	662	440	5.9	80.0	6.4	417	334	6.0	2.29	6.7	2.2	80.8	31 900	157	2.3	[illegible]
Middletown town	3 555	2 424	2 034	5.2	75.6	4.1	1 414	1 056	5.6	2.15	3.1	2.1	74.0	29 500	150	3.8	[illegible]
Milan town	1 666	837	650	5.7	87.5	1.5	573	464	5.7	2.43	1.4	2.8	87.1	42 300	225	2.5	[illegible]
Milford town	2 685	1 295	1 162	5.5	72.4	5.2	1 029	799	5.5	2.24	3.1	1.3	73.0	28 700	151	2.2	[illegible]
Milo town	6 732	3 186	2 790	5.9	69.3	3.2	2 611	1 755	5.9	2.19	2.6	2.1	69.9	29 400	151	1.5	[illegible]
Milton town	12 876	4 649	4 634	5.3	59.1	1.7	4 394	3 317	5.4	2.70	1.5	2.9	60.4	37 300	171	1.1	[illegible]
Mina town	1 245	676	458	6.1	81.9	3.3	402	325	6.2	2.85	2.7	3.2	84.8	34 200	157	0.9	[illegible]
Minden town	4 743	1 789	1 778	5.8	64.9	5.1	1 669	1 185	5.8	2.42	4.2	2.8	65.6	21 700	117	1.8	[illegible]
Minerva town	1 905	636	635	6.3	83.3	1.6	616	517	6.4	2.93	1.5	1.5	84.4	47 500	193	0.8	[illegible]
Minisink town	2 488	838	831	6.1	80.3	2.5	785	590	6.1	2.88	2.5	1.8	80.5	41 500	197	0.8	[illegible]
Mohawk town	3 795	1 353	1 347	5.7	73.3	2.6	1 278	1 018	5.7	2.58	2.1	2.3	74.8	30 400	128	1.1	[illegible]
Moira town	2 624	927	921	5.8	76.3	4.2	855	673	5.8	2.63	3.4	4.0	77.0	25 600	131	1.0	[illegible]
Monroe town	14 948	4 919	4 553	6.1	74.5	0.9	4 224	3 168	6.1	3.13	0.8	5.8	76.1	56 800	266	0.8	[illegible]
Montezuma town	1 125	368	365	5.5	70.1	4.4	345	266	5.6	3.10	2.9	4.1	70.7	29 600	156	1.0	[illegible]
Montgomery town	16 576	5 903	5 893	5.5	70.4	1.7	5 527	3 947	5.6	2.65	1.6	2.9	72.2	36 200	205	1.6	[illegible]
Montour town	2 607	991	988	5.8	70.1	2.4	942	699	5.8	2.26	1.8	1.3	70.2	29 500	158	1.7	[illegible]
Mooers town	2 927	1 031	992	5.6	75.5	8.5	890	701	5.8	3.07	6.2	5.3	76.5	27 700	123	0.7	[illegible]
Moravia town	2 640	1 092	1 060	5.8	72.3	3.5	853	623	6.2	2.70	1.6	3.0	71.7	26 400	160	2.0	[illegible]
Moreau town	11 188	3 977	3 938	5.5	71.5	1.4	3 800	2 942	5.5	2.54	1.1	2.8	72.3	36 300	160	1.0	[illegible]
Moriah town	5 139	1 999	1 907	5.9	74.6	3.0	1 748	1 361	6.0	2.52	2.1	2.9	75.7	22 200	126	1.0	[illegible]
Morris town	1 780	708	678	6.1	75.5	3.7	613	475	6.2	2.45	3.1	2.6	77.2	29 800	151	0.8	[illegible]
Morristown town	1 921	1 298	720	5.9	83.5	4.7	632	513	5.9	2.52	3.0	3.5	84.8	26 000	151	2.8	[illegible]
Mount Hope town	4 398	1 290	1 234	5.8	84.6	1.3	1 201	936	5.9	2.85	1.2	3.6	84.4	41 100	182	0.5	[illegible]
Mount Kisco town	8 025	3 188	3 181	4.5	41.7	2.4	3 096	1 195	4.5	2.23	2.4	3.7	42.3	73 200	318	0.3	[illegible]
Mount Morris town	4 478	1 741	1 730	5.7	67.7	2.5	1 636	1 090	5.7	2.34	1.9	2.1	69.1	31 800	158	1.2	[illegible]
Mount Pleasant town	39 298	12 706	12 700	6.0	68.6	1.4	12 505	8 870	6.0	2.63	1.4	2.2	69.0	84 700	260	0.3	[illegible]
Murray town	4 754	1 764	1 757	5.8	68.4	3.7	1 658	1 201	5.8	2.49	3.0	3.1	70.2	34 400	174	2.0	[illegible]
Nanticoke town	1 425	491	490	5.3	61.2	1.2	451	381	5.4	3.13	1.1	2.4	61.4	38 300	146	1.0	[illegible]
Naples town	2 338	948	890	6.3	78.1	2.6	807	655	6.3	2.46	2.1	2.1	78.2	31 000	158	1.7	[illegible]
Nassau town	4 479	1 791	1 644	5.5	74.4	3.5	1 502	1 129	5.6	2.58	3.2	3.8	75.2	30 100	175	3.8	[illegible]
Nelson town	1 495	788	529	6.0	81.9	3.2	486	405	6.2	2.77	3.3	2.7	83.1	33 700	171	1.0	[illegible]
Neversink town	2 840	1 413	1 035	5.5	75.2	1.7	991	803	5.5	2.45	1.7	2.4	75.9	42 600	172	1.2	[illegible]
New Albion town	2 156	911	816	6.1	77.5	3.2	770	589	6.1	2.38	2.6	1.8	78.3	24 300	120	2.3	[illegible]
Newark Valley town	3 765	1 336	1 328	5.8	70.3	2.0	1 255	1 001	5.9	2.76	1.8	2.2	70.9	38 600	153	2.0	[illegible]
New Baltimore town	3 050	1 188	1 106	5.8	80.5	5.2	1 031	861	5.9	2.59	3.9	1.6	80.7	36 600	174	1.8	[illegible]
New Berlin town	3 025	1 227	1 149	5.8	67.6	3.7	1 024	769	5.9	2.39	2.5	2.3	67.8	24 200	118	3.0	[illegible]
New Bremen town	2 316	783	739	6.2	78.9	3.7	692	619	6.3	3.08	2.3	4.9	79.5	30 100	131	1.7	[illegible]
Newburgh town	22 747	7 691	7 617	5.9	85.3	0.9	7 350	5 962	5.9	2.84	0.8	2.0	85.9	40 900	219	0.9	[illegible]
New Castle town	15 425	4 742	4 727	7.6	92.8	0.3	4 547	4 150	7.8	3.35	0.3	1.1	93.1	122 700	328	1.8	[illegible]
Newfane town	9 268	3 411	3 255	5.8	82.9	1.2	3 125	2 513	5.8	2.54	1.1	1.7	63.6	38 700	175	1.0	[illegible]
Newfield town	4 401	1 618	1 615	5.3	59.8	3.2	1 567	1 322	5.3	2.49	2.6	1.9	59.5	37 600	191	0.7	[illegible]
New Hartford town	21 286	7 703	7 696	5.9	74.1	0.5	7 534	5 666	5.9	2.39	0.5	1.0	74.5	41 500	208	0.6	[illegible]
New Haven town	2 421	995	830	5.9	72.9	4.1	761	662	5.9	2.96	2.4	3.2	72.9	32 600	161	1.8	[illegible]
New Lebanon town	2 271	951	888	5.5	70.7	2.5	807	591	5.5	2.36	1.7	2.9	71.7	35 900	174	2.2	[illegible]
New Paltz town	10 183	3 453	3 422	5.1	66.3	1.9	3 160	1 829	5.2	2.32	1.7	2.1	68.5	44 000	246	2.6	[illegible]
Newport town	2 206	764	741	6.1	70.6	2.2	685	571	6.1	2.83	1.3	3.2	72.3	26 700	135	0.5	[illegible]
New Scotland town	8 976	3 047	3 028	6.2	80.2	2.5	2 940	2 366	6.3	2.80	1.9	1.5	80.7	47 300	213	0.6	[illegible]
Newstead town	7 231	2 634	2 633	5.7	71.1	2.7	2 503	1 834	5.8	2.48	2.2	1.6	72.4	40 600	160	1.1	[illegible]
New Windsor town	19 534	7 074	7 026	5.3	70.3	0.9	6 711	4 177	5.3	2.61	0.8	2.3	71.4	41 600	249	1.4	[illegible]
Niagara town	9 648	3 488	3 485	5.2	63.3	0.5	3 334	2 422	5.2	2.60	0.4	1.8	65.0	39 600	212	0.4	[illegible]
Nichols town	2 567	870	866	6.0	77.9	1.5	819	682	6.1	2.96	1.0	2.6	78.0	35 100	138	1.0	[illegible]
Niles town	1 115	707	381	6.4	88.[illegible]	3.9	359	321	6.4	2.80	3.1	4.2	88.0	32 400	154	0.9	[illegible]
Niskayuna town	17 471	6 404	6 399	6.7	85.0	0.4	6 212	4 985	6.7	2.44	0.4	0.8	85.6	52 700	258	[illegible]	[illegible]
Norfolk town	4 992	1 660	1 651	5.6	78.7	4.8	1 561	1 283	5.6	2.88	4.0	5.3	79.3	30 700	126	[illegible]	[illegible]
Northampton town	2 829	1 685	1 127	5.6	74.9	3.0	1 019	776	5.6	2.31	2.6	3.3	76.1	30 900	126	2.6	[illegible]
North Castle town	9 467	3 043	3 041	7.1	82.5	0.6	2 966	2 453	7.1	3.07	0.8	0.7	82.5	125 300	306	[illegible]	[illegible]

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Table 1a. **Summary of General Housing Characteristics for Towns/Townships: 1980**—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Towns/Townships of 1,000 or More	Total persons	Total housing units	Year-round housing units: Total	Median rooms	Percent: One unit at address	Percent: Lacking complete plumbing for exclusive use	Occupied: Total	Owner	Median rooms	Median number of persons	Percent: Lacking complete plumbing for exclusive use	Percent: With 1.01 or more persons per room	Percent: One unit at address	Median value (dollars), specified owner	Median contract rent (dollars), specified renter	Vacancy rate: Homeowner	Vacancy rate: Rental
Providence town	1 210	551	415	5.1	77.1	11.8	386	346	5.2	2.88	10.6	7.0	77.7	30 200	128	0.9	11.1
Pulteney town	1 274	941	557	6.2	81.0	10.2	462	398	6.4	2.30	5.2	1.7	85.3	31 000	105	4.1	14.7
Putnam Valley town	8 994	3 950	3 110	5.9	87.9	0.9	2 887	2 381	6.0	2.86	0.8	1.9	87.7	62 700	279	1.6	3.1
Queens borough	1 891 325	740 129	736 502	4.3	31.0	2.5	711 940	271 072	4.3	2.26	2.4	7.1	31.5	51 400	237	0.8	2.6
Queensbury town	18 978	7 614	6 860	5.5	76.4	1.8	6 448	4 724	5.6	2.50	1.4	2.7	77.2	43 700	226	1.2	6.6
Ramapo town	89 060	27 785	27 757	6.1	68.8	1.1	26 888	17 198	6.1	3.04	1.1	4.5	69.8	70 400	304	0.8	4.5
Randolph town	2 593	958	928	6.2	78.7	2.3	889	671	6.2	2.47	1.9	1.3	78.9	27 400	134	0.9	1.4
Reading town	1 813	764	681	5.9	80.8	4.6	617	509	6.1	2.51	3.4	2.8	80.4	31 500	157	1.4	7.7
Red Hook town	8 351	2 887	2 805	5.8	78.4	1.8	2 611	1 945	5.9	2.51	1.5	2.6	79.1	43 700	201	2.0	7.4
Remsen town	1 614	686	589	5.8	76.6	6.1	528	416	5.9	2.63	4.0	3.8	77.5	23 900	125	1.9	7.4
Rensselaerville town	1 760	1 060	734	6.0	80.9	8.0	632	529	6.0	2.36	6.0	2.2	81.5	35 800	163	2.2	3.7
Rhinebeck town	7 062	2 581	2 566	5.5	75.1	1.4	2 389	1 633	5.5	2.18	1.3	1.6	74.9	47 700	240	1.6	5.6
Richfield town	2 608	1 322	1 031	6.1	69.2	1.6	920	681	6.1	2.38	1.5	2.0	70.3	26 600	130	1.9	12.8
Richland town	5 594	2 434	2 123	5.7	66.1	3.5	1 950	1 320	5.8	2.43	2.6	2.4	67.0	30 700	151	1.2	6.9
Richmond town	2 703	1 518	998	5.4	82.2	2.5	948	762	5.4	2.53	2.0	2.0	83.4	41 500	202	0.7	8.4
Richmondville town	2 186	926	866	5.7	64.9	2.7	772	599	5.8	2.43	1.8	1.7	67.1	31 700	163	1.3	15.2
Ridgeway town	7 278	2 792	2 782	6.0	70.7	5.1	2 611	1 826	6.0	2.40	4.7	1.8	72.4	31 500	164	1.2	6.9
Riga town	4 309	1 524	1 519	5.9	79.2	1.5	1 483	1 274	5.9	2.57	1.2	1.5	80.1	45 900	200	0.1	2.3
Ripley town	3 229	1 244	1 217	5.6	74.4	2.4	1 077	811	5.7	2.62	1.9	3.9	74.3	27 300	154	1.5	9.2
Riverhead town	20 243	9 158	8 130	5.2	73.4	0.5	7 492	5 719	5.3	2.24	0.6	2.7	73.7	44 100	240	2.4	7.1
Rochester town	5 344	3 360	2 205	5.0	70.3	4.0	1 922	1 405	5.1	2.39	4.0	4.9	73.1	34 500	177	1.2	20.1
Rockland town	4 207	2 232	2 045	5.2	74.7	2.1	1 482	1 006	5.3	2.34	2.2	4.0	72.2	30 900	172	3.3	9.2
Romulus town	2 464	909	786	5.7	73.4	1.8	726	465	5.7	2.64	0.8	2.8	74.4	25 800	210	2.3	5.8
Root town	1 601	625	625	5.8	73.0	4.0	585	507	5.7	2.82	2.9	3.6	72.1	25 800	127	1.0	2.5
Rose town	2 684	921	902	6.2	81.8	5.4	856	710	6.2	2.88	4.6	3.4	82.0	24 900	129	0.3	2.0
Rosendale town	5 933	2 458	2 328	5.3	75.9	4.5	2 087	1 563	5.3	2.49	3.1	2.8	77.1	32 400	178	1.5	6.8
Rotterdam town	29 451	10 429	10 425	5.7	89.6	0.7	10 223	8 850	5.8	2.55	0.7	1.3	90.0	36 500	191	0.7	3.4
Roxbury town	2 291	1 364	1 024	5.7	70.3	1.6	860	682	5.9	2.28	1.4	1.9	76.7	30 300	157	2.3	11.9
Royalton town	7 765	2 574	2 571	6.2	82.9	2.9	2 470	2 069	6.2	2.89	2.5	1.9	83.8	38 300	170	0.6	5.4
Rush town	3 001	969	969	6.6	91.3	1.1	936	792	6.7	2.89	1.2	1.1	92.0	53 700	180	0.9	2.0
Rushford town	1 125	1 133	413	6.3	83.8	2.7	372	309	6.3	2.53	2.4	3.0	84.4	23 800	115	1.0	7.4
Russell town	1 636	656	554	5.8	75.5	9.9	507	422	5.9	3.02	7.5	4.9	76.3	18 700	122	1.2	4.5
Russia town	2 405	1 201	873	6.0	75.6	5.2	811	656	6.0	2.53	3.9	3.6	77.1	26 900	141	0.6	5.5
Rutland town	2 685	924	905	5.9	70.8	2.9	846	662	5.9	2.82	2.1	3.9	71.5	30 600	153	1.5	10.7
Rye town	38 896	14 546	14 543	4.8	44.0	3.1	14 239	7 489	4.9	2.38	3.0	4.8	44.5	83 700	259	0.8	1.7
St. Armand town	1 064	446	418	5.5	74.9	1.0	377	301	5.6	2.50	0.8	2.4	73.7	36 600	170	2.6	17.4
St. Johnsville town	3 064	1 160	1 170	6.1	66.0	4.0	1 087	770	6.1	2.38	3.2	2.4	68.5	20 000	112	1.7	6.8
St. Regis Indian Reservation	1 802	576	570	5.0	76.7	10.0	516	472	5.0	3.28	8.9	14.7	76.6	17 200	88	–	13.7
Salem town	2 377	1 070	946	6.1	79.0	4.2	879	704	6.1	2.34	3.9	2.4	78.8	25 700	128	1.7	4.9
Salina town	37 400	13 751	13 750	5.6	77.6	0.7	13 370	9 634	5.6	2.44	0.7	1.3	78.7	35 200	243	0.6	4.3
Salisbury town	1 946	745	617	5.5	76.2	7.3	595	490	5.6	2.86	6.7	5.9	76.5	20 000	101	2.4	3.7
Sand Lake town	[illegible]	2 708	2 421	5.8	80.5	1.6	2 301	1 644	5.8	2.77	1.3	2.7	81.1	38 300	188	1.4	5.2
Sandy Creek town	[illegible]	2 030	1 174	5.9	75.6	3.5	1 079	863	5.9	2.64	2.0	3.2	76.6	27 400	128	2.2	6.9
Sanford town	2 635	1 422	1 045	6.1	75.6	4.3	875	679	6.3	2.57	1.7	3.7	75.5	29 500	127	3.0	9.3
Sangerfield town	2 397	802	800	6.2	69.0	2.9	756	522	6.3	2.60	2.1	2.1	69.8	27 400	163	0.6	5.3
Saranac town	3 389	1 187	1 157	5.7	82.8	6.3	1 065	920	5.8	2.95	5.3	4.2	82.1	29 200	152	1.1	9.9
Saratoga town	4 595	2 049	1 744	5.6	68.1	2.6	1 613	1 207	5.7	2.44	2.1	3.0	69.9	30 500	154	1.8	12.5
Sardinia town	2 792	982	913	5.9	84.9	2.2	857	694	6.0	3.06	1.3	3.3	86.2	37 400	143	0.6	5.2
Saugerties town	17 975	7 307	7 136	5.5	76.7	2.1	6 279	4 705	5.6	2.46	1.8	2.9	77.8	34 600	176	2.0	11.7
Savannah town	1 905	663	656	6.2	74.4	8.4	601	500	6.3	2.83	6.3	3.8	75.4	25 000	152	2.3	7.3
Scarsdale town	17 650	5 433	5 433	8.5	92.8	0.1	5 381	4 902	8.5	3.23	0.1	0.5	92.8	161 700	491	0.3	1.2
Schaghticoke town	7 094	2 331	2 322	5.8	83.3	3.1	2 243	1 887	5.9	2.92	2.5	3.3	84.0	33 400	163	1.0	6.8
Schodack town	11 345	4 052	4 035	5.6	76.2	1.9	3 902	3 066	5.7	2.53	1.6	2.2	76.8	40 200	177	0.8	4.5
Schoharie town	3 107	1 190	1 172	5.9	70.8	4.6	1 084	777	5.9	2.43	3.3	2.1	72.0	34 400	163	0.8	7.3
Schroeppel town	6 016	2 884	2 776	5.4	66.9	1.9	2 637	2 069	5.4	2.77	1.6	3.3	67.5	34 000	176	1.9	6.7
Schroon town	1 606	1 711	723	5.5	80.2	3.9	604	453	5.6	2.25	2.8	3.5	80.3	33 000	136	4.0	9.0
Schuyler town	2 886	1 065	1 065	5.2	60.1	1.7	1 023	894	5.2	2.42	1.5	1.8	59.7	34 900	143	1.3	6.5
Schuyler Falls town	4 164	1 364	1 369	5.3	73.3	5.1	1 309	1 037	5.4	2.99	4.0	4.8	73.1	33 900	162	2.3	6.6
Scio town	1 971	782	708	5.9	77.1	2.5	665	534	5.9	2.47	1.2	2.9	77.4	27 700	138	1.7	4.4
Scipio town	1 471	606	518	6.3	84.0	2.5	487	415	6.4	2.75	2.7	1.8	84.0	30 800	170	2.1	7.7
Scott town	1 193	434	391	5.7	72.6	4.1	366	318	5.7	3.15	3.3	4.4	73.5	35 200	130	1.2	7.7
Scriba town	5 455	2 052	1 935	5.4	63.3	2.7	1 795	1 403	5.4	2.81	1.7	3.5	65.1	40 300	183	1.2	11.3
Seneca town	2 749	956	955	6.8	89.4	2.3	901	733	6.8	2.73	1.6	1.2	89.3	31 600	156	1.6	5.1
Seneca Falls town	9 886	3 802	3 692	5.8	70.5	2.7	3 531	2 395	5.9	2.33	2.1	1.3	71.5	34 200	173	1.1	3.7
Sennett town	2 561	931	930	6.3	86.7	1.6	846	752	6.5	2.64	1.2	0.6	91.6	45 100	173	2.1	[illegible]
Seward town	1 587	597	585	5.9	74.9	3.1	512	425	6.0	2.79	1.8	2.0	76.2	29 700	154	2.3	[illegible]
Shandaken town	2 912	2 796	2 222	4.6	75.3	5.7	1 167	849	5.1	2.19	2.6	2.6	75.8	33 200	164	2.6	[illegible]
Sharon town	1 915	759	703	6.1	76.7	6.1	616	499	6.2	2.61	4.2	2.1	78.4	25 600	142	2.3	[illegible]
Shawangunk town	8 186	2 973	2 642	5.5	83.6	1.6	2 427	1 876	5.6	2.51	1.4	2.8	84.3	38 700	206	1.1	9.2
Shelby town	5 361	1 850	1 850	6.0	75.9	2.6	1 774	1 337	6.1	2.46	2.4	2.3	76.8	29 400	169	0.8	[illegible]
Sheldon town	2 644	877	821	6.2	82.5	1.2	790	652	6.3	3.12	1.3	2.8	83.2	39 100	173	0.8	[illegible]
Shelter Island town	2 071	1 818	1 516	6.2	95.7	0.3	887	740	6.0	2.02	0.6	0.7	95.6	72 800	211	2.6	[illegible]
Sherburne town	3 657	1 339	1 336	5.9	68.3	2.7	1 275	938	5.9	2.50	2.1	2.0	68.9	28 600	145	0.6	[illegible]
Sheridan town	2 659	928	910	6.1	88.1	1.4	868	724	6.2	2.56	0.7	2.1	88.8	39 400	168	0.4	[illegible]
Sherman town	1 490	586	551	6.3	80.4	3.1	511	391	6.4	2.46	2.7	3.5	82.6	25 700	150	2.0	[illegible]
Sidney town	6 856	2 797	2 796	5.6	69.4	1.7	2 583	1 712	5.7	2.24	1.4	2.2	70.4	31 300	153	1.6	[illegible]
Skaneateles town	7 795	3 083	2 846	6.5	82.5	1.5	2 705	2 175	6.6	2.49	1.1	1.1	83.4	48 900	211	1.1	[illegible]
Smithfield town	1 001	316	314	6.0	79.0	1.9	299	245	6.0	3.06	1.3	4.3	78.3	24 600	138	–	[illegible]
Smithtown town	116 663	32 781	32 614	7.1	91.6	0.3	31 986	27 903	7.1	3.56	0.3	1.1	91.8	53 800	312	0.6	[illegible]
Smithville town	1 174	433	395	5.8	71.9	6.1	369	312	5.8	2.90	6.0	3.5	73.2	24 300	115	1.3	[illegible]
Smyrna town	1 142	389	383	6.4	77.3	2.6	350	273	6.5	2.93	2.6	3.7	77.4	19 400	128	2.5	[illegible]
Sodus town	9 485	4 017	3 553	5.6	73.5	5.7	3 245	2 403	5.7	2.52	3.6	4.1	74.5	30 200	161	1.5	[illegible]
Somers town	13 133	4 517	4 353	6.3	92.9	0.2	4 002	3 685	6.4	2.91	0.2	1.4	93.6	80 500	307	4.4	[illegible]
Somerset town	2 701	1 018	907	6.2	84.3	3.0	835	703	6.3	2.95	2.9	2.2	86.5	36 200	154	1.3	[illegible]
Southampton town	42 849	28 362	19 187	5.5	84.9	0.7	16 643	12 630	5.5	2.16	0.6	2.3	86.3	57 600	239	2.8	[illegible]

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Table 1a. Summary of General Housing Characteristics for Towns/Townships: 1980—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Towns/Townships of 1,000 or More	Total persons	Total housing units	Year-round housing units: Total	Median rooms	Percent: One unit at address	Percent: Lacking complete plumbing for exclusive use	Occupied: Total	Owner	Median rooms	Median number of persons	Percent: Lacking complete plumbing for exclusive use	Percent: With 1.01 or more persons per room	Percent: One unit at address	Median value (dollars), specified owner	Median contract rent (dollars), specified renter	Vacancy rate: Homeowner	Vacancy rate: Rental
West Bloomfield town	2 281	845	842	5.5	63.4	1.9	797	688	5.5	2.58	0.9	1.0	63.5	42 700	178	0.9	4.4
Westerlo town	2 929	1 218	1 128	5.7	76.4	3.8	979	821	5.8	2.65	3.1	2.7	77.7	37 900	175	1.0	6.5
Western town	1 954	697	671	5.6	79.7	1.3	627	510	5.9	2.82	0.6	2.7	80.9	34 000	179	0.6	15.2
Westfield town	5 054	2 144	2 086	6.0	74.5	2.8	1 930	1 417	6.1	2.25	2.1	1.4	76.4	34 300	148	0.6	10.5
West Monroe town	3 482	1 230	1 155	5.4	65.9	1.8	1 104	948	5.4	2.99	1.7	4.4	66.1	37 400	163	0.7	6.0
Westmoreland town	5 458	1 733	1 733	6.0	85.7	1.0	1 651	1 452	6.0	3.12	1.0	2.2	86.2	35 500	155	1.0	5.2
Westport town	1 439	747	608	6.1	85.2	3.1	544	420	6.1	2.24	2.8	1.7	85.8	32 100	138	1.2	6.1
West Seneca town	51 210	16 663	16 661	5.7	75.3	0.7	16 326	12 605	5.7	2.74	0.6	2.1	76.0	44 800	207	0.4	3.0
West Sparta town	1 100	367	360	5.9	73.9	6.9	340	269	5.9	2.92	6.5	4.1	75.0	28 800	150	1.1	5.3
West Turin town	1 867	797	681	6.5	81.1	6.5	613	494	6.6	2.76	3.9	1.6	81.6	24 500	121	2.8	9.8
Westville town	1 491	495	480	5.5	79.6	4.8	444	393	5.6	3.10	4.3	6.3	78.6	27 100	133	1.8	5.6
Wheatfield town	9 609	3 264	3 257	5.7	82.6	0.9	3 161	2 660	5.7	2.79	0.9	2.2	83.1	46 800	168	0.5	2.3
Wheatland town	4 897	1 785	1 771	5.9	81.3	1.5	1 683	1 182	6.0	2.68	1.4	1.1	82.2	42 900	269	1.3	4.6
Wheeler town	1 014	377	331	5.9	79.5	9.1	299	265	5.9	2.90	5.4	5.7	79.3	25 800	135	1.9	8.1
White Creek town	2 988	1 199	1 152	5.9	76.3	4.3	1 063	866	5.9	2.38	3.6	2.8	75.5	30 800	151	1.5	3.9
Whitehall town	4 427	1 736	1 711	5.8	68.4	4.6	1 557	1 081	5.8	2.46	3.7	2.8	70.5	24 100	131	1.0	6.7
Whitestown town	20 150	7 226	7 225	5.7	73.2	1.0	7 019	5 357	5.8	2.46	1.0	1.7	73.9	34 100	148	0.7	3.9
Williamson town	6 319	2 362	2 212	6.3	86.2	3.7	2 090	1 740	6.3	2.68	2.9	2.3	87.4	37 300	170	1.1	8.4
Williamstown town	1 008	498	338	5.8	74.3	6.8	307	257	5.9	2.96	5.5	5.2	75.9	23 300	137	1.5	13.8
Willing town	1 451	571	539	6.0	80.3	2.8	493	402	6.0	2.65	2.0	2.6	81.5	31 900	133	1.5	2.2
Willsboro town	1 759	1 232	683	5.7	78.8	1.9	632	514	5.8	2.44	1.6	1.9	79.4	31 000	130	1.7	7.8
Wilmington town	1 051	593	547	4.7	84.5	4.8	381	292	5.1	2.42	5.5	3.4	80.1	34 200	168	0.7	6.3
Wilna town	6 227	2 375	2 373	5.5	63.4	4.3	2 203	1 415	5.6	2.41	3.2	3.4	64.6	24 400	128	2.5	7.0
Wilson town	5 792	2 234	1 996	5.8	82.8	2.3	1 908	1 586	5.8	2.69	1.7	2.5	82.6	39 200	173	1.2	3.9
Wilton town	7 221	2 429	2 384	5.3	58.1	0.9	2 245	1 843	5.3	2.89	0.6	3.7	58.8	43 400	200	1.9	11.3
Windham town	1 663	1 226	922	5.7	73.0	3.6	647	469	5.9	2.24	2.3	0.9	74.2	41 600	174	4.1	15.2
Windsor town	5 911	2 358	2 030	5.5	74.2	3.7	1 905	1 548	5.6	2.81	2.5	4.1	75.5	36 100	165	1.0	5.6
Winfield town	2 053	726	715	6.2	75.5	1.0	675	530	6.2	2.75	1.0	1.5	76.3	31 100	136	1.9	5.8
Wirt town	1 137	526	440	6.2	83.9	4.3	384	329	6.2	2.48	3.6	4.2	83.6	19 500	133	2.7	3.5
Wolcott town	4 021	1 893	1 567	5.8	71.3	7.4	1 409	1 118	5.8	2.46	6.0	3.1	72.7	25 400	139	2.0	8.8
Woodbury town	6 494	2 244	2 068	6.2	81.3	1.2	1 972	1 502	6.3	3.17	1.1	2.0	81.9	60 000	247	2.0	4.1
Woodhull town	1 460	545	525	5.9	76.0	5.9	467	384	6.0	2.86	4.7	4.7	78.4	19 700	118	1.3	5.7
Woodstock town	6 823	3 606	3 387	5.2	83.3	3.1	2 749	1 957	5.4	2.16	2.5	2.0	85.3	51 500	232	1.7	10.0
Worcester town	1 993	986	898	6.3	76.3	4.5	743	588	6.3	2.25	2.8	2.0	76.5	26 400	126	2.8	12.4
Wright town	1 302	495	461	5.9	77.4	5.4	409	366	6.0	2.95	4.9	3.9	77.3	31 100	156	1.3	14.0
Yates town	2 447	1 273	879	6.3	80.8	3.2	808	641	6.3	2.63	2.7	3.1	81.2	29 900	156	1.5	4.6
York town	3 212	1 099	1 099	6.1	80.2	2.5	1 042	802	6.1	2.83	1.4	1.5	80.9	36 400	180	1.2	7.3
Yorkshire town	3 620	1 392	1 331	5.3	62.1	1.0	1 228	961	5.4	2.52	0.7	2.7	63.5	36 200	149	1.1	10.4
Yorktown town	31 988	9 915	9 684	6.8	87.1	0.5	9 493	8 213	6.8	3.23	0.4	1.5	87.2	67 300	275	0.4	2.3

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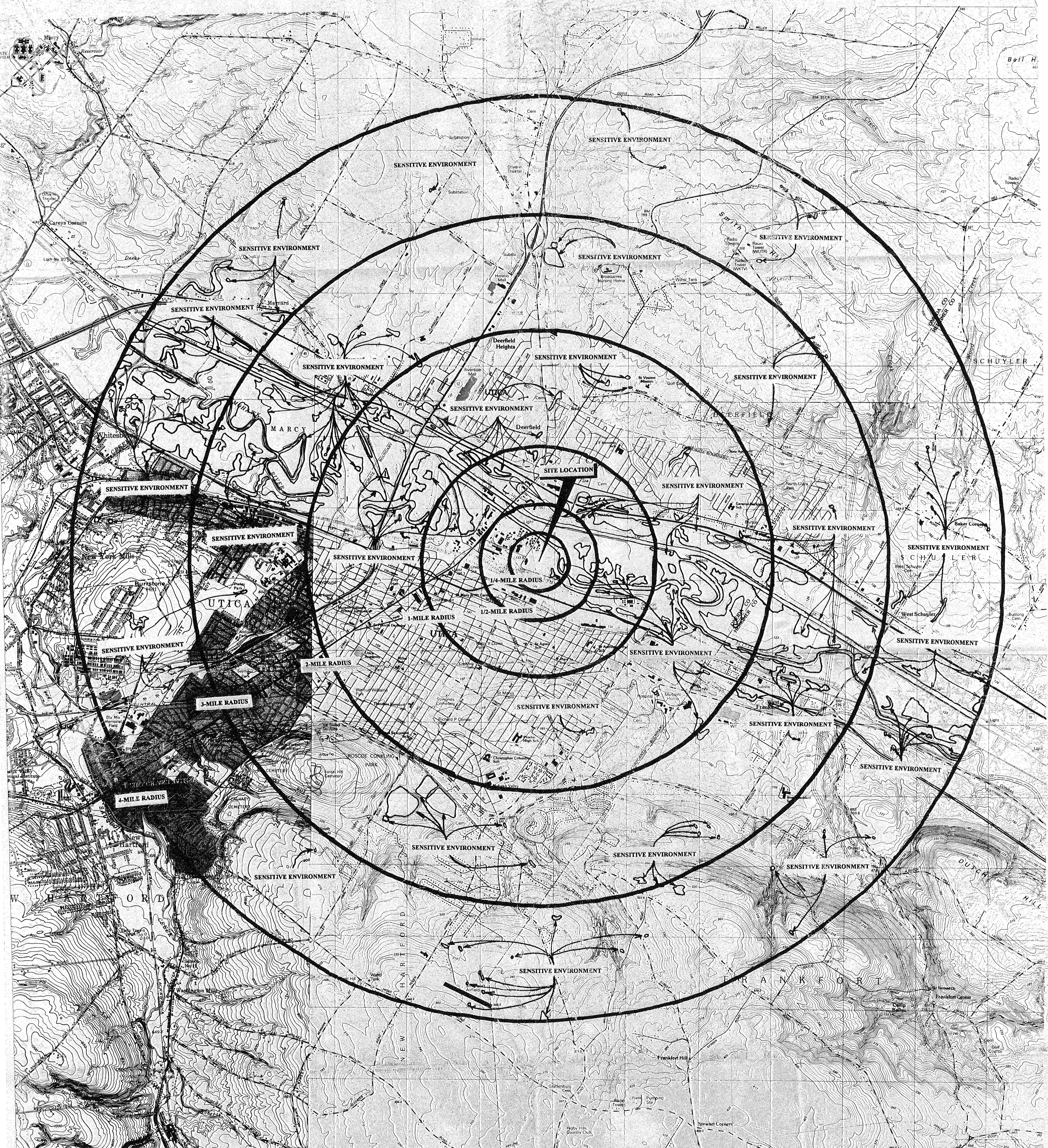
REFERENCE 14



EBASCO ENVIRONMENTAL

TOPOGRAPHY TAKEN FROM:

1983 UTICA EAST, N.Y.

1955 UTICA WEST, N.Y.

1955 ORISKANY, N.Y.

1983 SOUTH TRENTON, N.Y.

TOPOGRAPHIC QUADRANGLE 7.5 MIN. SERIES

KILOMETERS

METERS

MILES

FEET

NEW YORK

QUADRANGLE LOCATION

FOUR MILE VICINITY MAP

UNIVERSAL WASTE INC.

UTICA, N.Y.

REFERENCE # 14

PAGE 1 OF 1

REFERENCE 15

Ref 15

EBASCO SERVICES INCORPORATED

BY DW DATE 7/15/92 SHEET 1 OF 2

CHKD. BY ____ DATE ____ OFS NO. 8310.807 DEPT. NO. 940

CLIENT USEPA

PROJECT SST - Universal Waste

SUBJECT Population served by wells

Radius	Town	Total Population w/in radius (Ref 14)	Population Served by Municipal Water (Refs 6,7,8,9,10)	Pop. served by wells = total pop w/in radius - pop served by municipal water	Total for Radius
0 - 1/4	Utica	845	845	0	0
1/4 - 1/2	Utica	2540	2540	0	0
1/2 - 1	Utica	10,159	10,159	0	0
1 - 2	Utica	35,246	35,246	0	2
	Frankfort	76	29 × 2.54 = 74	2	
	Deerfield	260	260	0	
2 - 3	Utica	7149	7149	0	803
	Frankfort	433	71 × 2.54 = 180	253	
	Schuyler	179	0	179	
	Deerfield	444	25 × 2.92 = 73	371	
	Marcy	277	277	0	
	New Hartford	636	636	0	

581 2-88

EBASCO SERVICES INCORPORATED

Ref 15

BY D.W. DATE 7/15/92 SHEET 2 OF 2

CHKD. BY ____ DATE ____ OFS NO. 8310 807 DEPT. NO. 940

CLIENT USEPA

PROJECT SSI Universal Waste

SUBJECT Pop. Served by Wells

Radius	Town	Total Pop.	Mun. Water	Wells	Total
3 - 4	Utica	10,802	10,802	0	966
	Schuyler	288	0	288	
	Deerfield	117	0	117	
	Marcy	407	407	0	
	Whitestown	524	524	0	
	New Hartford	1173	1173	0	
	Frankfort	561	0	561	
	Yorkville	3,115	3115	0	

581 2-88

REFERENCE 16

Wehran EMCON Northeast

TELEPHONE CONVERSATION MEMORANDUM

Client: Ebasco
Project: Universal Waste
Proj. No.: 85595-001.000
Date: 9-20-95
Time: 11:40 a

Call To/From: Jack Connan
Representing: Herkimer Co. Dept. of Public Health
Phone No.: (315) 866-6879

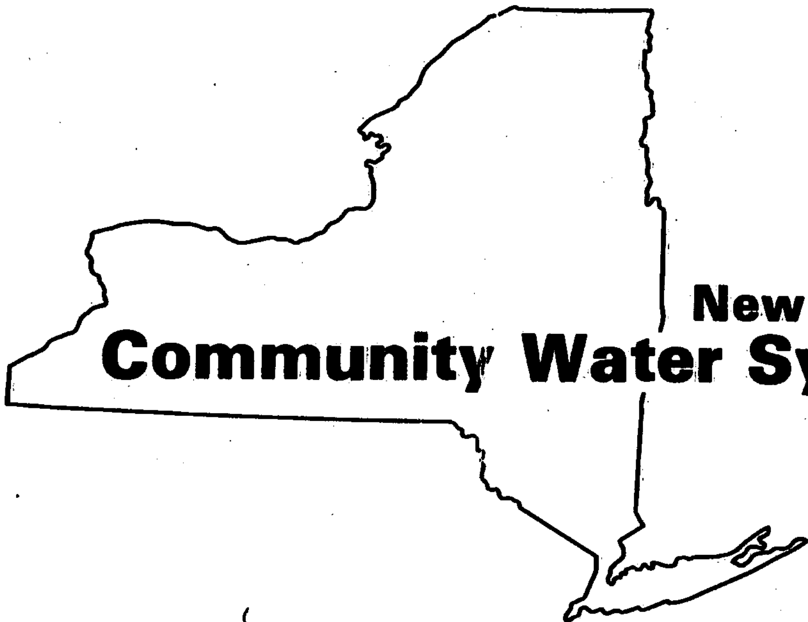
Summary of Conversation: Resources along pathways

No surface water intakes along Mohawk River in 15 mile TDL
Village of Frankfort well field is along river
Private wells are a mixture of bedrock and sand & gravel. Most residential wells go to bedrock.
Surface water resources: No irrigation
No ingredient in food Probable Watering of livestock
No designated water recreation in Mohawk River
Large Truck farms along Rt. 5 that irrigate, but not known what the source of water is: probably tributary.
4-5 Trailer parks around Windfall Rd in Western Herkimer Co. have community wells. Parks service 30-100 people. Most trailer park wells are in unconsolidated deposits. Trailer parks are W. of Windfall Rd
No WHPA in Western Herkimer Co.
Ferguson Rd in Town of Frankfort on public water, but rest of Area has private water. Most wells in this area are bedrock wells.
Agriculture in Area = truck farms, dairy farms, in extreme western Herkimer Co. mostly N. of River

Copies To

By Julia A. Gilbert

REFERENCE 17



New York State Atlas of
Community Water System Sources
1982

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

REFERENCE # 17
PAGE 1 OF 3

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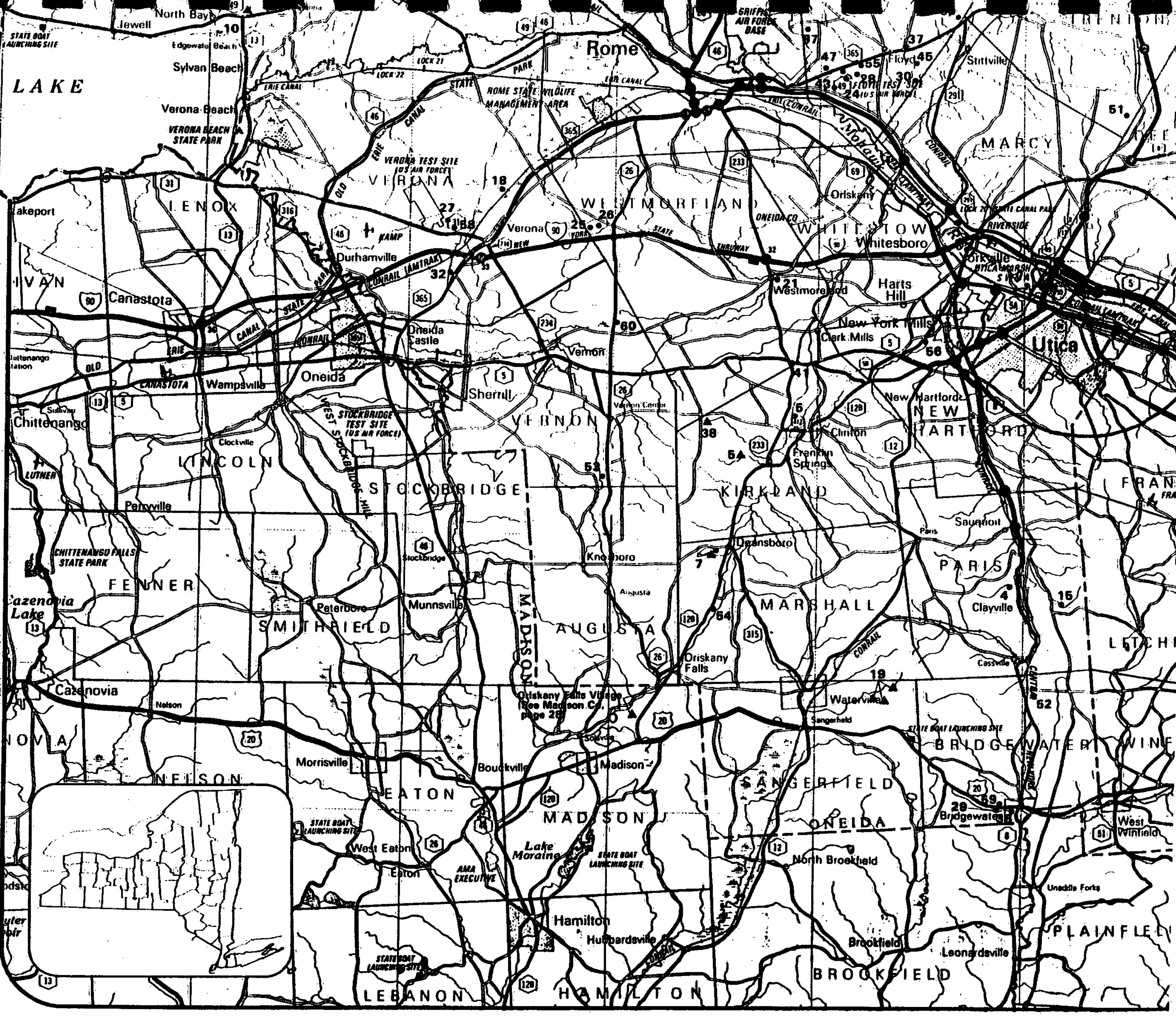


SCALE 1:250,000

5 0 5 MILES

NORTH

DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

ONEIDA COUNTY

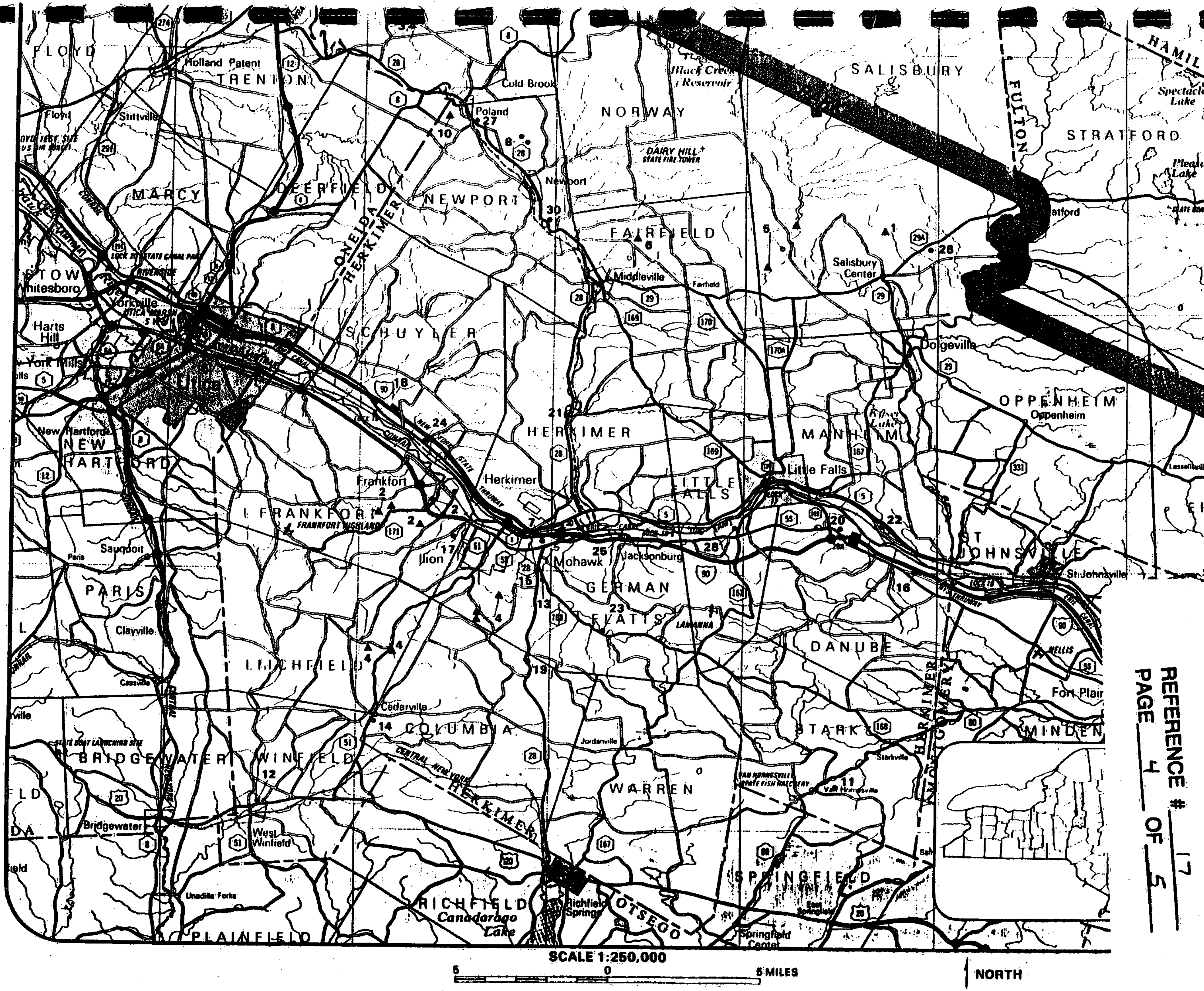
REFERENCE # 17

PAGE 2 OF 2

ONEIDA COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Barneveld Village	391	Wells (Springs)
2	Boonville Village	2400	Boonville Reservoirs
3	Camden Village	2936	Emmons Brook Reservoir, Wells (Springs)
4	Clayville Water Works	468	Wells
5	Clinton Village	3000	Clinton Reservoir, Wells
6	Crystal Spring Water Company	100	Springs
7	Deansboro Water Company	300	Reservoir
8	Forestport Water District	800	Forestport Reservoir
9	McConnellsville Water Company	234	Wells
10	North Bay Water District	374	Wells
11	Oneida City (Madison Co, Page 28)		Florence Creek, Glenmore Reservoir
	Oriskany Falls Village (See No 11 Madison Co, Page 28)	802	
12	Prospect Village	362	Wells
13	Remsen Village	650	Wells (Springs)
14	Rome City	37300	East Branch Fish Creek Reservoir
15	Sauquoit Water District	1800	Wells (Springs)
16	Sylvan Spring Water Company	2200	Vienna & Hollenbeck Reservoirs
17	Utica Board of Water Supply	135000	Hinckley Reservoir
18	Verona Water District	1200	Wells
19	Waterville Village	2000	Big Creek Reservoirs
20	Westernville Spring Water Company	NA	Wells (Springs)
21	Westmoreland Water District #1	550	Wells
Non-Municipal Community			
22	Annsville Youth Camp	70	Wells
23	Bailey's Beach Trailer Park	33	Wells
24	Birches Trailer Court	168	Wells
25	Boyd Mobile Manor	126	Wells
26	Boyd Trailer Park	15	Wells
27	Brandybrook Mobile Home Court	24	Wells
28	Breezy Acres Trailer Court	48	Wells
29	Brookside Mobile Manor	102	Wells
30	Colonial Mobile Motor Court	18	Wells
31	Covewood Mobile Home Park	93	Wells
32	Dandelion Village	22	Wells
33	Delta Lake Trailer Court	117	Wells
34	Derendas Lee Manor Trailer Park	27	Wells
35	E and A Trailer Park	10	Wells
36	Fitch's Trailer Park	144	Wells
37	Green Mansion Park	90	Wells
38	Hamilton College	2000	Hamilton College Reservoirs
39	Hillside Trailer Park	81	Wells
40	Hyde's Trailer Court	15	Wells
41	Ken Coulter Mobile Homes	66	Wells
42	Knoll's Trailer Park	33	Wells (Springs)
43	Laymons Trailer Court	25	Wells
44	Lee Valley Trailer Court	126	Wells (Springs)
45	Maple Grove Mobile Home Court	66	Wells
46	Mayer Mobile Manor	54	Wells
47	McDonalds Mobile Home Estates	45	Wells
48	Meadow Brook Mobile Home Park	78	Wells
59	Mel Haven Mobile Home Park	14	Wells
50	Oneida's Mobile Court #2	40	Wells
51	Paradise Mountain Mobile Home Park	474	Wells
52	Pine Village Estates	72	Wells
53	Quiet Valley Mobile Village	200	Wells
54	Signal Mobile Court	78	Wells
55	Stewarts Mobile Home Park	60	Wells
56	Thompson's Mobile Manor	33	Wells
57	Torraco Trailer Park	78	Wells
58	Verona Mobile Home Park	153	Wells
59	Williams Trailer Park	15	Wells
60	Yerkie's Mobile Manor	70	Wells

HERKIMER COUNTY
REFERENCE # 17
PAGE 4 OF 5



HERKIMER COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Dolgeville Village	2600	Cold & Mang Brooks
2	Frankfort Village	4325	Moyer Creek, Reservoir, Wells
3	Herkimer Village	9100	Mill Creek Reservoir
4	Ilion Village	9800	Clappsaddle, Hawks, Litchfield & Steele Creeks
5	Little Falls City	8000	Beaver Creek Reservoir, Springs, Spruce Lake
6	Middleville Village	725	Kenyon Brook
7	Mohawk Village	3300	Wells
8	Newport Village	900	Wells (Springs)
9	Old Forge Water District	3000	Independence Lake
10	Poland Village	650	Springs
11	Van Hornsville	120	Wells (Springs)
12	West Winfield Village	2967	Wells
Non-Municipal Community			
13	Brookhaven Trailer Park	36	Wells
14	Cedarhurst Park	35	Wells
15	Creekside Park	25	Wells
16	Danube Trailer Park	21	Wells
17	Delin Estates	95	Wells
18	Elmtree Estates	161	Wells
19	Golden Horseshoe Trailer Park	63	Wells
20	Homestead Trailer Park & Sales	137	Wells
21	Kastbridge Estates	116	Wells
22	Kuyrkendall Court Mobile Home	84	Wells
23	Leatherstocking Estates	77	Wells
24	Miller Grove Trailer Park	217	Wells
25	Mountainview Trailer Park	20	Wells
26	Pinecrest Bible Training Center	NA	Wells
27	Sportsman Trailer Park	70	Wells
28	Sunsetview Mobile Home Park	50	Wells
29	Trails End Campsite	150	Wells
30	White Creek Mobile Home Park	10	Wells

REFERENCE 18

REFERENCE # 18
PAGE 1 OF 1

Wehran EMCON Northeast

TELEPHONE CONVERSATION MEMORANDUM

Client Ebasco

Proj. No. 85595-001.000

Project Universal Waste

Date 7-20-95

Time 2:45p

Call To/From Jessica Breiton

Representing Oneida Co. Planning Dept.

Phone No. (315) 798-5710

Summary of Conversation Wellhead Protection Areas

- may be small section of WHPA @ Higby Rd in the Moyer Creek Drainage Basin that serves the village of Frankfort. (I checked this Moyer Creek Drainage Basin is > 4 miles from the site).

source of water for private wells - check USGS reports on Area

Erie Canal is designated as a recreation area

Utica Marsh = State wildlife management Area. No other wildlife management areas along Mohawk River w/in 4 miles E or W of site

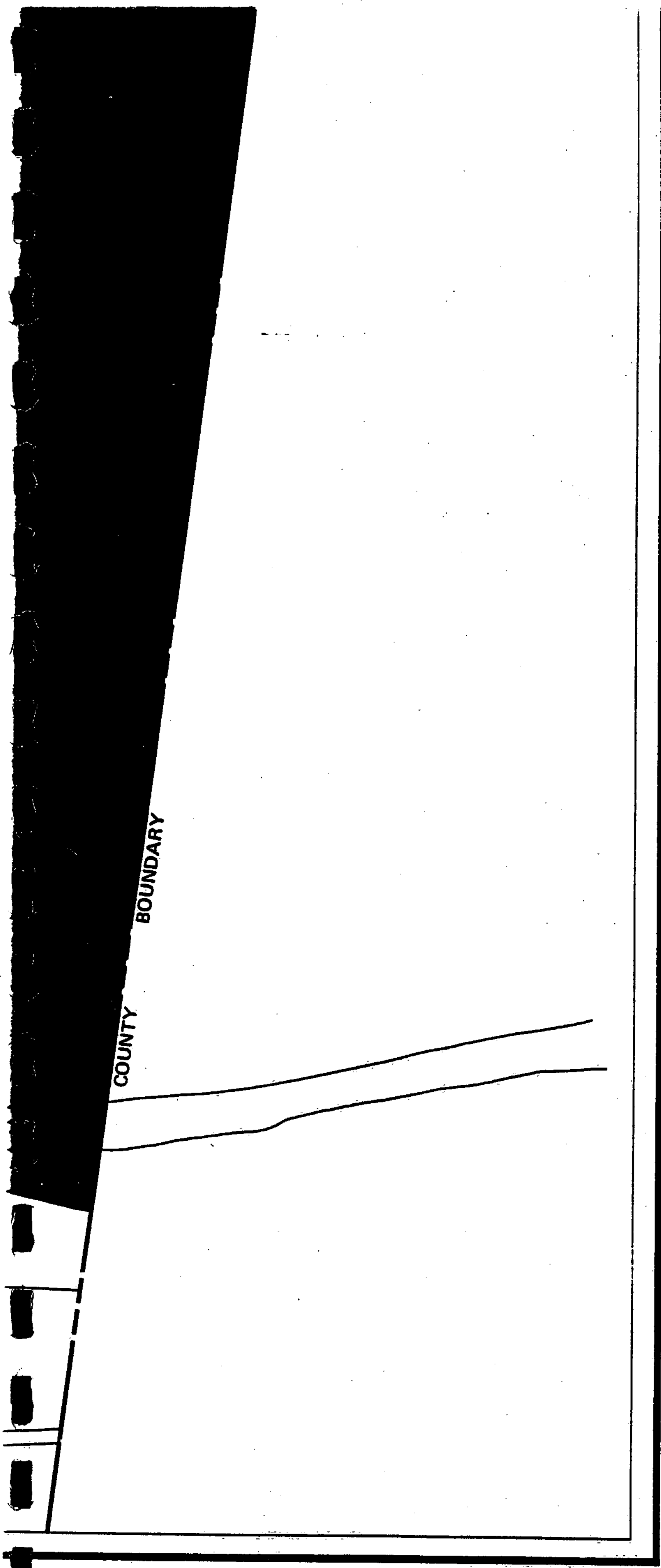
Call Utica Planning & Economic Development (315) 792-0181 for more info on parks w/in 1/2 mile

Copies To

By Julia A. Gilbert

10.008.6/94.4241009

REFERENCE 19



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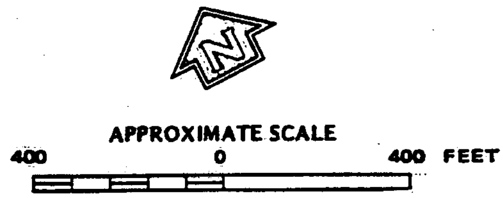
PAGE 1 OF 3



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
UTICA, NEW YORK
ONEIDA COUNTY

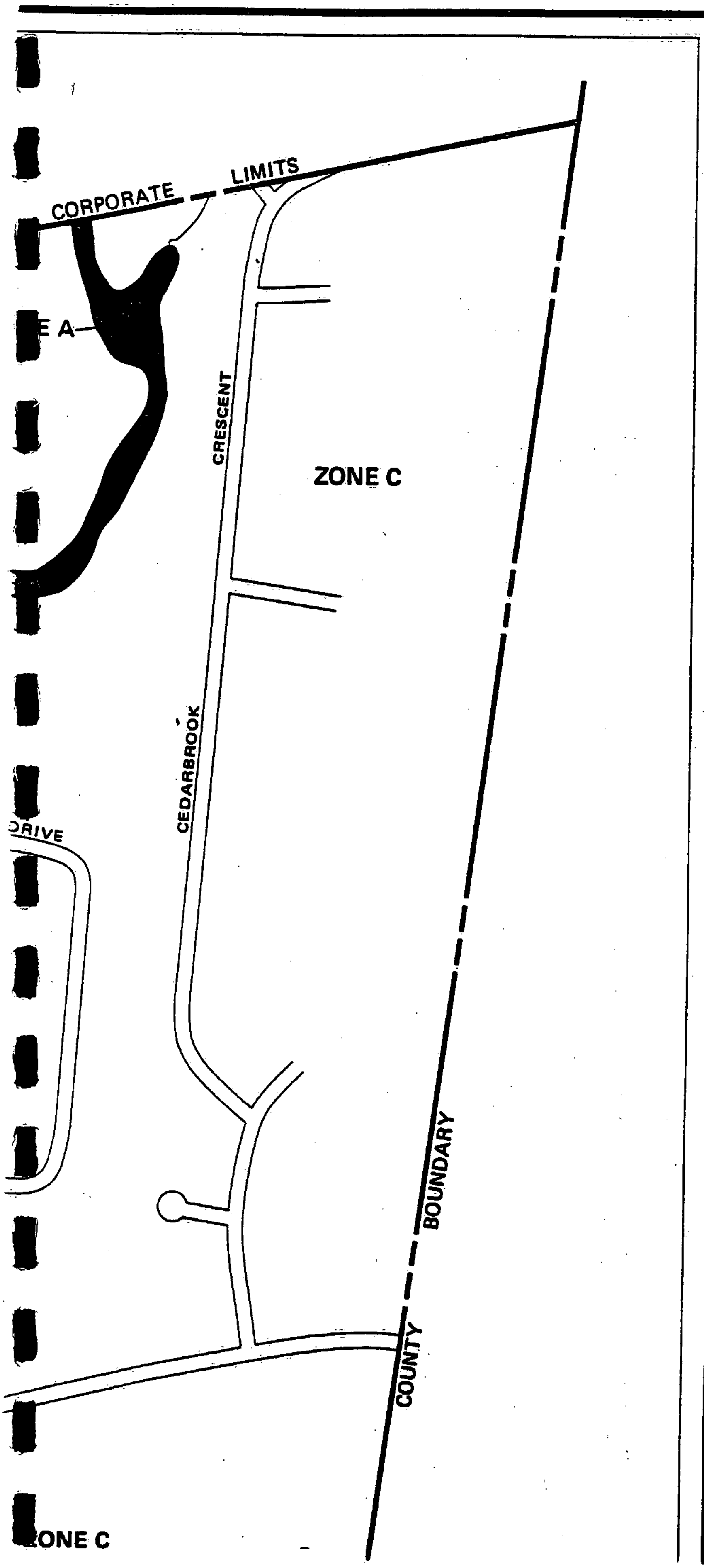
PANEL 2 OF 6
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
360558 0002 A

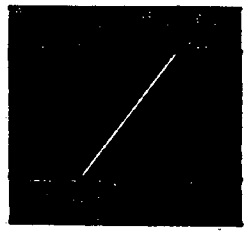
EFFECTIVE DATE:
FEBRUARY 1, 1984

Federal Emergency Management Agency

[redacted]



KEY TO MAP



500-Year Flood Boundary	
100-Year Flood Boundary	
Zone Designations*	
100-Year Flood Boundary	
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

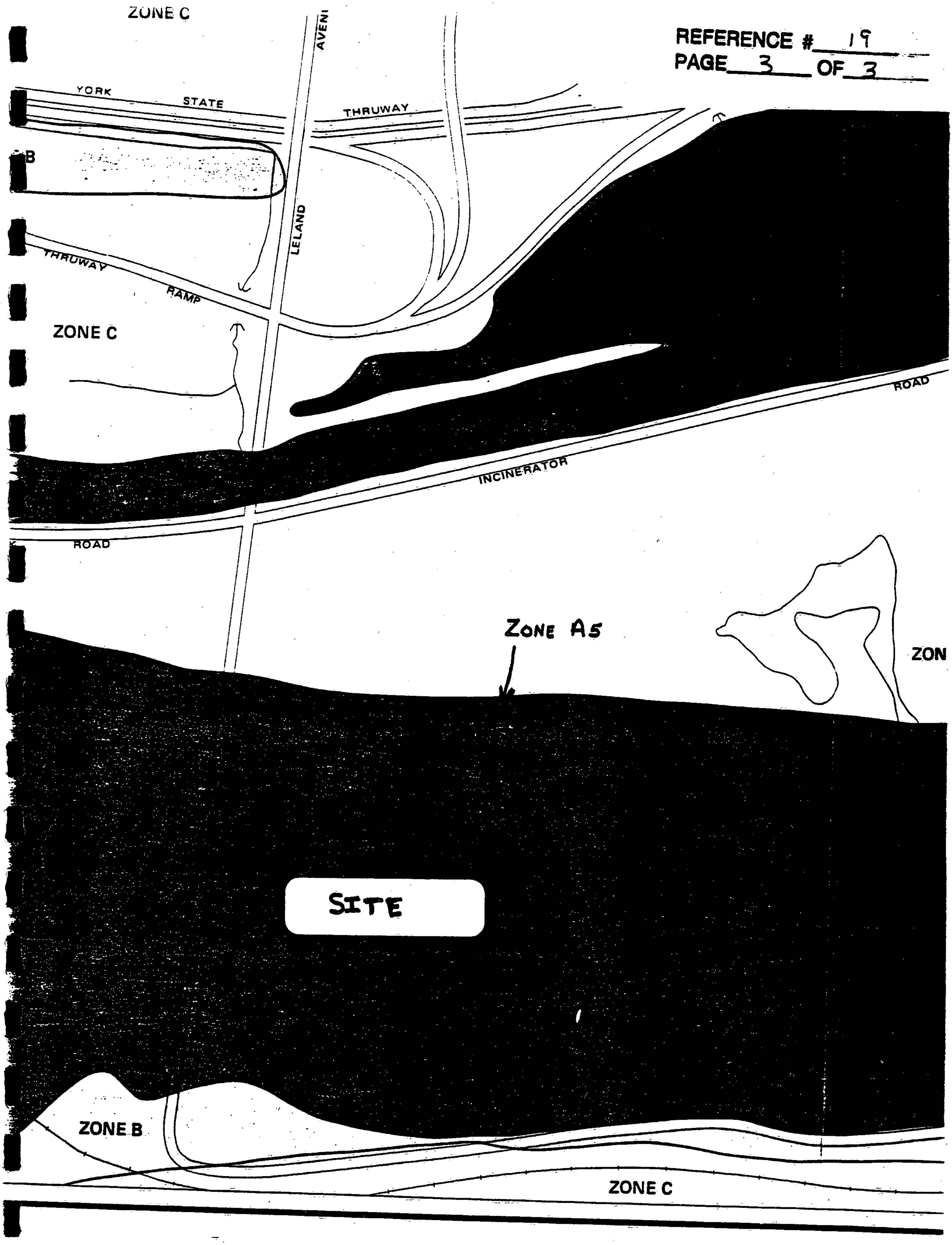
ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.


ZONE C
AVEN
YORK STATE THRUWAY
B
LELAND
THRUWAY RAMP
ZONE C
ROAD
INCINERATOR
ROAD
ZONE A5
ZON
SITE
ZONE B
ZONE C

REFERENCE 20

U.S. DEPARTMENT OF COMMERCE
LUTHER H. HODGES, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

WASHINGTON, D.C.
May 1961
Repaginated and Reprinted January 1963

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Price $1.25

Denver 234-2811
837-3964 Bookstore

REFERENCE # 20
PAGE 1 OF 3

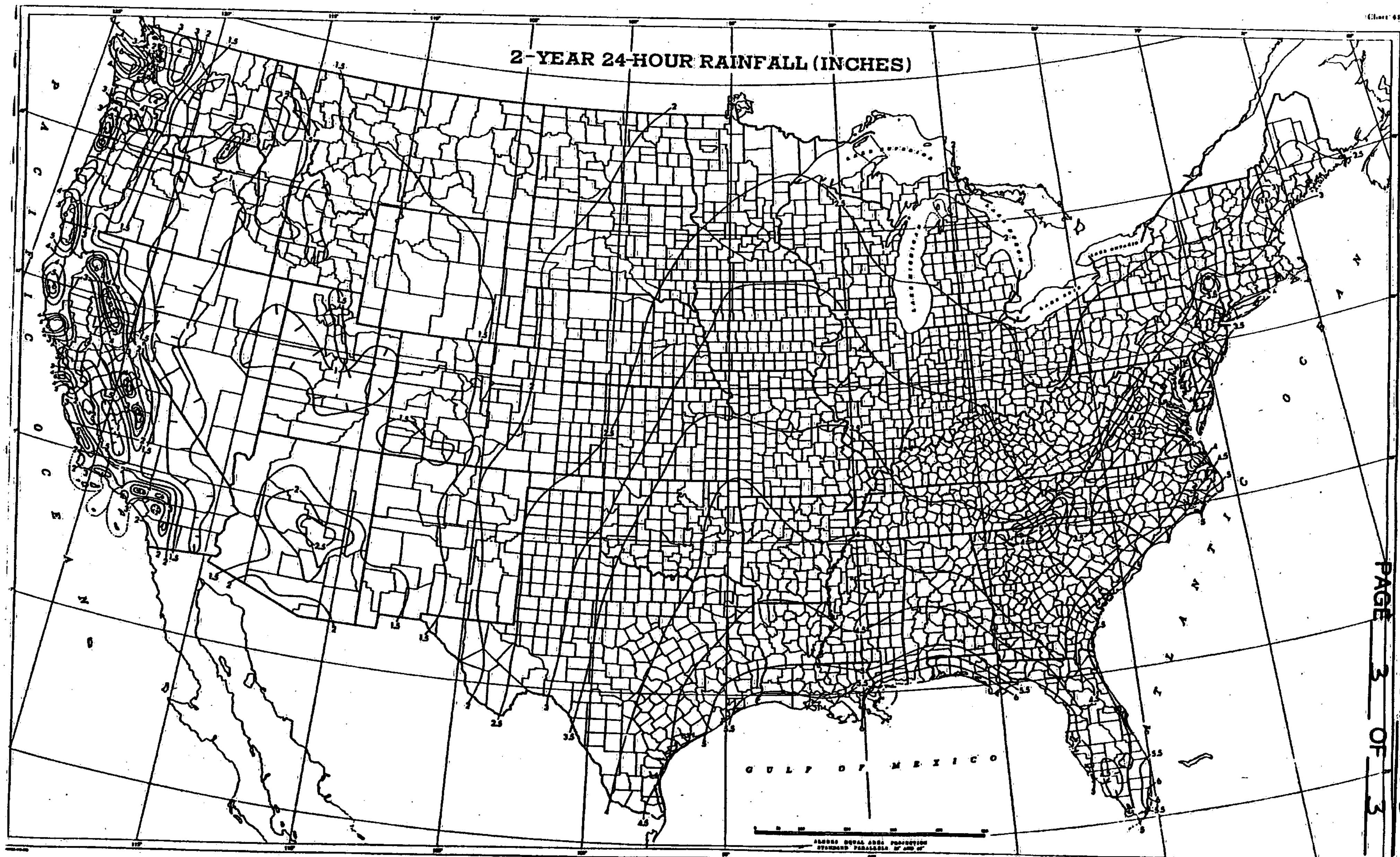
PREFACE

This publication is intended as a convenient summary of empirical relationships, working guides, and maps, useful in practical problems requiring rainfall frequency data. It is an outgrowth of several previous Weather Bureau publications on this subject prepared under the direction of the author and contains an expansion and generalization of the ideas and results in earlier papers. This work has been supported and financed by the Soil Conservation Service, Department of Agriculture, to provide material for use in developing planning and design criteria for the Watershed Protection and Flood Prevention program (P.L. 566, 83d Congress and as amended).

The paper is divided into two parts. The first part presents the rainfall analyses. Included are measures of the quality of the various relationships, comparisons with previous works of a similar nature, numerical examples, discussions of the limitations of the results, transformation from point to areal frequency, and seasonal variation. The second part presents 49 rainfall frequency maps based on a comprehensive and integrated collection of up-to-date statistics, several related maps, and seasonal variation diagrams. The rainfall frequency (isopluvial) maps are for selected durations from 30 minutes to 24 hours and return periods from 1 to 100 years.

This study was prepared in the Cooperative Studies Section (Joseph L. H. Paulhus, Chief) of Hydrologic Services Division (William E. Hiatt, Chief). Coordination with the Soil Conservation Service, Department of Agriculture, was maintained through Harold O. Ogrosky, Chief, Hydrology Branch, Engineering Division. Assistance in the study was received from several people. In particular, the author wishes to acknowledge the help of William E. Miller who programmed the frequency and duration functions and supervised the processing of all the data; Normalee S. Foat who supervised the collection of the basic data; Howard Thompson who prepared the maps for analysis; Walter T. Wilson, a former colleague, who was associated with the development of a large portion of the material presented here; Max A. Kohler, A. L. Shands, and Leonard L. Weiss, of the Weather Bureau, and V. Mockus and R. G. Andrews, of the Soil Conservation Service, who reviewed the manuscript and made many helpful suggestions. Caroll W. Gardner performed the drafting.

CONTENTS



REFERENCE # 20
PAGE 3 OF 3

REFERENCE 21

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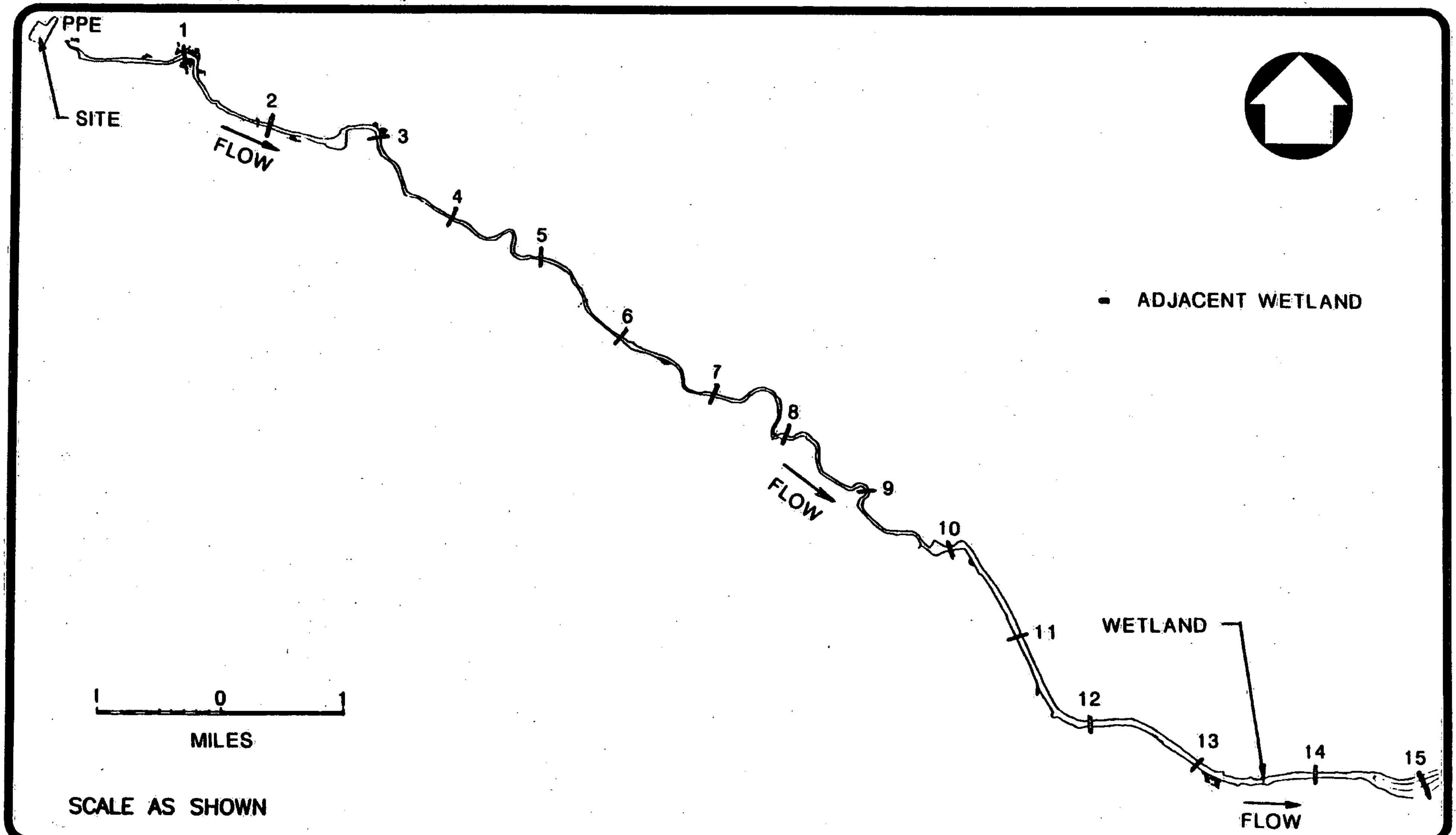
Scale: 1 = 1.0000 Date: 10/6/95 Time: 9:06 AM Operator: ACADONE



EMCON

DATE
DWN DBT
APP
REV

UNIVERSAL WASTE INC. SITE

UTICA, NEW YORK

15 MILE SURFACE WATER PATHWAY

FIGURE

PROJECT NO.
85595-001.000

REFERENCE #
PAGE 1 OF 1

REFERENCE 22

REFERENCE # 22
PAGE 1 OF 4

Low-Flow Frequency Analysis of Streams in New York

Prepared by

UNITED STATES DEPARTMENT OF INTERIOR

GEOLOGICAL SURVEY

in cooperation with

NEW YORK STATE

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

BULLETIN 74
1979

CONTENTS

ILLUSTRATIONS

PLATES
(in pocket)

TABLES

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM (SI) UNITS

The following factors may be used to convert the inch-pound units used in this report to the International System of Units (SI).

Inch-pound units	Multiply by	To obtain SI units
	Area	
square mile (mi^2)	2.590	square kilometer (km^2)
	Flow	
cubic foot per second (ft^3/s)	28.32	liter per second (L/s)
	.02832	cubic meter per second (m^3/s)

	Mohawk River at Utica	43 06 42	75 14 11	065		6-14-66	438
						6-15-66	705
						8- 8-67	491
01341120	Reall Creek at Deerfield	43 07 00	75 12 44	065	9.5	10-29-69	*1.70
						8-13-70	*.79
01341150	Mohawk River at Utica	43 06 29	75 12 42	065		6-15-66	695
						9- 7-66	313
						9- 7-66	374
						8- 9-67	449
01342520	Starch Factory Creek at Utica	43 05 09	75 11 31	065		10-29-69	*1.70
						8-13-70	*.34
	McGowan Creek near Ilion	43 01 25	75 03 10	043	3.37	8-26-54	.29
	Miller Creek at Mohawk	43 00 20	75 01 20	043	.70	8-26-54	0
	Tory Creek at Mohawk	43 00 35	75 01 06	043	1.56	8-26-54	0
01342798	West Canada Creek, South Branch, at Nobleboro	43 23 48	74 50 34	043		9-18-68	*30.8
01342800	West Canada Creek at Nobleboro	43 23 47	74 51 35	043	192	7-20-56	*131
						8- 9-56	*34.9
						9- 5-56	*679
						8-13-57	*42.5
						4- 7-59	*1,630
						8-20-59	*58
						4- 4-60	4,630
						8-12-60	*41.8
						8-31-60	*28.2
						9-29-60	*37.8
						7-11-61	*134
						9-28-61	*43.2
01343400	Mill Creek near Gray	43 16 36	74 57 04	043		7-18-68	*22.3
						9-20-68	*8.98
01343410	Mounts Creek near Ohio	43 17 46	74 56 36	043		7-18-68	*5.77
						9-20-68	*4.08
01343430	Ash Creek near Ohio	43 19 36	74 57 15	043		7-11-68	*5.32
						9-20-68	*3.45
01343470	Black Creek at Pardeeville Corners	43 18 50	75 02 23	043		7-18-68	*89.1
						9-20-68	*69.4
	Black Creek at Grant	43 19 05	75 03 40	043		8- 8-01	62
01343800	Mill Creek at Russia	43 15 49	75 05 37	043		9- 1-66	*3.28
						9- 9-66	*3.48
						9-16-66	*3.76
						10- 3-66	*4.36
						11- 1-66	*3.12
						11-18-66	*4.83
01343850	Taylor Creek at Russia	43 15 54	75 05 55	043		9- 1-66	*1.30
						9- 9-66	*1.71
						9-16-66	*1.75
						10- 3-66	*2.12
						11- 1-66	*1.49
						11-18-66	*1.71
01343900	Russia Brook at Russia	43 15 36	75 05 09	043		9- 2-66	*.12
						9- 9-66	*.28
						9-16-66	*.28
						10- 3-66	*.46
						11- 1-66	*.30
						11-18-66	*.95

REFERENCE # 22
PAGE 4 OF 4

REFERENCE 23

REFERENCE # 23
PAGE 1 OF 1

Wehran EMCON Northeast

TELEPHONE CONVERSATION MEMORANDUM

Client: Ebasco
Project: Universal Waste
Proj. No. 85595-001.000
Date: 9-25-95
Time: 2:15

Call To/From: Jim Luz
Representing: NYSDEC Region 6
Phone No. (315) 793-2555

Summary of Conversation: @ source of private water & resources

There are very few private wells w/in Area. Almost all on public water except some in Town of Frankfort & Town of Schuyler.

Nearest private wells - Ferguson Rd may have private wells.

Private wells generally to unconsolidated

Depth to aquifer up to 200' = Deep sand & gravel layer

Extensive truck farms between Newport Rd & Windfall Rd along Rte. 5. Predominantly use surface water for irrigation from tributaries or canal itself.

Ferguson RD ~ 1.8 miles from site

Copies To

By Julia A. Gilbert

10.008.8/94.4241000

REFERENCE 24

PART 876

MOHAWK RIVER DRAINAGE BASIN

(Statutory authority: Environmental Conservation Law, § 17-0301)

Section 876.1 Adopting order. Pursuant to the authority contained in article 6 of the Public Health Law, the Water Pollution Control Board having made proper studies and having held a public hearing on due notice with reference thereto, hereby adopts and assigns the following classifications and standards of quality and purity to the various waters as specifically designated and described below and subject to the definitions and conditions as stated.

876.2 Definitions and conditions. The several terms, words or phrases hereinafter mentioned shall be construed as follows:

(a) *Item number*. In table I an item number is assigned to each specifically designated waters or portions thereof.

(b) *Waters index number* as appearing in table I shall mean that number or abbreviation assigned to any specifically designated waters or portions thereof for the purpose of identification.

(1) The numbering or index system used to identify specific waters of New York State was adapted from that used by the New York State Conservation Department in its biological survey series of reports on watersheds of the State. The primary waters of a drainage basin, such as rivers or large lakes are usually referred to by name or an abbreviation. Tributaries of primary waters are consecutively numbered progressing upstream from the mouth. Ponds and lakes are numbered consecutively as they are encountered, such number being preceded by the letter P. Tributaries of such lakes and ponds are numbered consecutively as they enter, progressing clockwise around the lake or pond from its outlet or mouth. When isolated lakes and ponds are referenced by a waters index number, it is merely for convenience of their identification and location within a subdrainage basin, and it is not necessarily indicative of their being tributary to any waters to which no surface connection is shown on the reference maps.

(2) This system was applied to the basin under consideration by the Conservation Department in its biological survey of the Mohawk-Hudson watershed in 1934 and has been closely followed in connection with the identification of the waters with the following exceptions: Some of the stream numbers do not run consecutively due to the omission of streams originally shown on older maps employed by the Conservation Department at the time of its 1934 survey, but not shown on newer maps reproduced herein. Conversely, a few streams not shown on the older maps but appearing on the newer maps are designated by the letters a, b, c, etc.

(3) The system as applied to the identification of waters in the Mohawk River drainage basin may be illustrated as follows:

Waters Index Number	*Name*	*Explanation*
H	Hudson River	Primary Waters
H-240	Mohawk River	The 240th tributary of the Hudson River numbered consecutively upstream from the mouth.

TABLE I (contd.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
8	240 portion as described	Mohawk River	From Schenectady-Scotia Bridge across Mohawk River on NY Route 5 to Schenectady-Montgomery county line.	2,5	A	A
9	240 portion as described	Mohawk River	From Schenectady-Montgomery county line to trib. 76, (McQueen Creek).	5	C	C
10	240 portion as described	Mohawk River	From trib. 76, (McQueen Creek) to trib. 84, (Auries Creek).	5,9	B	B
11	240 portion as described	Mohawk River	From trib. 84, (Auries Creek) to trib. 89, (Cayadutta Creek).	9,12	C	C
12	240 portion as described	Mohawk River	From trib. 89, (Cayadutta Creek) to trib. 149, (Crum Creek).	12,16 19,20 22	B	B
13	240 portion as described	Mohawk River	From trib. 149, (Crum Creek) to trib. 163 which enters Mohawk River from south approximately 0.8 mile northwest from intersection of N.Y. Routes 5S and 167.	22,25	C	C
14	240 portion as described	Mohawk River and/or Barge Canal	From trib. 163 to junction of trib. 195, (Bonny Brook) with Mohawk River and to junction of trib. 196, (Pratt Creek) with Barge Canal.	25,28	B	B

TABLE I (contd.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
15	240 portion as described	Mohawk River	From junction of trib. 195 (Bonny Brook) to junction of trib. 219 (Sauquoit Creek).	28,32 37	C	C
16	240 portion as described	Barge Canal	From junction of trib. 196 (Pratt Creek) to junction of trib. 220. Trib. 220 enters Barge Canal from north approximately 0.8 mile west of hamlet of Maynard.	28,32 36	C	C
17	240 portion as described	Mohawk River	From junction of trib. 219 (Sauquoit Creek) to boundary line between towns of Floyd and Marcy.	37,36	B	B
18	240 portion as described	Barge Canal	From junction of trib. 220 to trib. 227 (Ninemile Creek).	36	C	C
19	240 portion as described	Mohawk River	From Floyd Avenue bridge in City of Rome to Delta Reservoir.	35,39	C	C(T)
20	240-P 1059	Delta Reservoir		35	A	A(T)
21	240 portion as described	Mohawk River	From Delta Reservoir to source.	35,42	A	A(TS)
22	240-1, 2, 3, 4 and tribs. including P 473, P 478	Tribs. of Mohawk River	Enter Mohawk River from south, north and west between mouth and Crescent Dam.	1	C	C

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REFERENCE # 24
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ILION QUADRANGLE

MAP 28

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PAGE 6 OF 6

HERKIMER QUADRANGLE

MAP 25

REFERENCE 25

REFERENCE: ___

PAGE 1 OF 1

TELEPHONE CONVERSATION MEMORANDUM

PROJ. NO. 04468

CLIENT Ebasco

DATE 7/13/94

PROJECT Kentucky Avenue - Satellite No 7

TIME 11:40 am

CALL (TO) FROM Colby Tucker

REPRESENTING NYSDEC Water Quality Management Bureau

PHONE NO. (518) 457-3656

SUMMARY OF CONVERSATION: Classification of streams & Rivers in New York

There is no specific language with regard to streams and rivers as sensitive environments.

The NYDEC classification system for freshwater bodies:

D = protection for fish life

C = protection for fish life and propagation of fish life

B = protection for contact recreation (bathing), fish life and propagation of fish life.

A = protection for drinking water, contact recreation, fish life & fish propagation

AA = protection for public water supplies w/out Treatment other than disinfection and to remove natural contaminants

AAspecial = protection for public water supply. No discharges allowed.

Wetlands along water body are not classified the same as the water body. For info on wetland classification call Timothy Sinnott or Jack Cooper (518) 457-1769 w/ Fish and Wildlife Bureau of Environmental Protection.

BY: J. Gilbert

COPIES TO: KA #7 File
KA #4 File

WehranEnviroTech

REFERENCE 26

REFERENCE # 26
PAGE 1 OF 3

EMCON

By JAG Date 9-21-95
Chkd. by ______ Date ______
Subject Universal Waste Sensitive Environments along Surface Water Pathway

Job No. 85595-001.000
Sheet No. 1 of 1

Surface Water Sensitive Environments

Environment	Distance From PPE			Frontage	
Mohawk River	0	to	1.75	1.75	
	1.8	to	5.48	3.68	
	7.95	to	15.00	7.05	
Wetlands	.67	to	.69	.02	on N side
	.97	to	1.10	.13	on N side
	1	to	1.15	.15	on S side
	1.19		1.20	.01	on N side
	2.19	to	2.23	.04	on S side
	2.90	to	2.92	.02	on N side
	2.93	to	3.0	.07	on N side
	6.38	to	6.5	.12	on S side
	10.28	to	10.36	.08	on S side
	11.45	to	11.50	.05	on S side
	13.06	to	13.18	.12	on S side
	13.57	to	13.6	.03	on N side

w/ in the 15-mile TDL. Based on USGS 7.5 Minute Topographic Quadrangles and Federal Wetland Maps.

Form DR001

PEMIE PEM1B PSS1E PEMIC PEMIE PEM1Fh PFO1E PUBFh

REFERENCE # 26
PAGE 2 OF 3

UTICA EAST, N.Y.

NOTES TO THE USER

- Subsystems, Classes, Subclasses, and Water Regimes in *Italics* were developed specifically for NATIONAL WETLANDS INVENTORY mapping.
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions.

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Prepared by National Wetlands Inventory
1991

AERIAL PHOTOGRAPHY

DATE:	4 / 86	DATE:	/ /
SCALE:	1:58 000	SCALE:	
TYPE:	CIR	TYPE:	

ESTUARINE — SYSTEM

2 — INTERTIDAL — SUBSYSTEM

AB — AQUATIC BED	RF — REEF	SB — STREAMBED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	SS — SCRUB-SHRUB	FO — FORESTED	CLASS
1 Algal 3 Rooted Vascular 4 Floating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	2 Mollusc 3 Worm	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	Subclass

LACUSTRINE — SYSTEM

2 — LITTORAL — SUBSYSTEM

RB — ROCK BOTTOM	UB — UNCONSOLIDATED BOTTOM	AB — AQUATIC BED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	OW — *OPEN WATER/ Unknown Bottom*	CLASS
1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent		Subclass

MODIFIERS

...adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, ...applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system

	WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
	Coastal Halinity	Inland Salinity	pH Modifiers for all Fresh Water			
Temporary-Tidal Seasonal-Tidal Semipermanent-Tidal Permanent-Tidal *Unknown* ...gimes are only used in ...ed freshwater systems	1 Hyperhaline 2 Euhaline 3 Mixohaline *(Brackish)* 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral i Alkaline	g Organic n Mineral	b *Beaver* d *Partially Drained/Ditched* f Farmed	h *Diked/Impounded* r Artificial Substrate s *Spoil* x Excavated

890

PUBHh

ILION, N.Y.

NOTES TO THE USER

- Subsystems, Classes, Subclasses, and Water Regimes in *Italics* were developed specifically for NATIONAL WETLANDS INVENTORY mapping.
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Prepared by National Wetlands Inventory

1991

AERIAL PHOTOGRAPHY

DATE 5/ /85 DATE / /
SCALE 1:58 000 SCALE
TYPE CIR TYPE

ESTUARINE — SYSTEM

2 — INTERTIDAL — SUBSYSTEM

AB — AQUATIC BED	RF — REEF	SB — STREAMBED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	SS — SCRUB-SHRUB	FO — FORESTED	CLASS
gal ooted Vascular oating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	2 Mollusc 3 Worm	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	Subclass

LACUSTRINE — SYSTEM

2 — LITTORAL — SUBSYSTEM

RB — ROCK BOTTOM	UB — UNCONSOLIDATED BOTTOM	AB — AQUATIC BED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	OW — *OPEN WATER/ Unknown Bottom*	CLASS
edrock ubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent		Subclass

MODIFIERS

adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system

	WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
	Coastal Halinity	**Inland Salinity**	**pH Modifiers for all Fresh Water**			
S Temporary-Tidal Seasonal-Tidal Semipermanent-Tidal Permanent-Tidal *Unknown* regimes are only used in freshwater systems	1 Hyperhaline 2 Euhaline 3 Mixohaline *(Brackish)* 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral i Alkaline	g Organic n Mineral	b *Beaver* d *Partially Drained/Ditched* f Farmed	h *Diked/Impounded* r Artificial Substrate s *Spoil* x Excavated

404

REFERENCE 27

United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, New York 13045

September 7, 1995

Ms. Julia A. Gilbert
Staff Hydrogeologist
Wehran-New York, Inc.
666 East Main Street
P.O. Box 2006
Middletown, NY 10940-0858

Dear Ms. Gilbert:

This responds to your letter of August 2, 1995, requesting information on the presence of endangered or threatened species in the vicinity of the Universal Waste Inc. site located in the City of Utica, Oneida County, New York.

Except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the project impact area. Therefore, no Biological Assessment or further Section 7 consultation under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required with the U.S. Fish and Wildlife Service (Service). Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered. A compilation of Federally listed and proposed endangered and threatened species in New York is enclosed for your information.

The above comments pertaining to endangered species under our jurisdiction are provided pursuant to the Endangered Species Act. This response does not preclude additional Service comments under the Fish and Wildlife Coordination Act or other legislation.

For additional information on fish and wildlife resources or State-listed species, we suggest you contact:

New York State Department of
Environmental Conservation
Region 6
State Office Building
317 Washington Street
Watertown, NY 13601
(315) 785-2236

New York State Department of
Environmental Conservation
Wildlife Resources Center - Information Serv.
New York Natural Heritage Program
700 Troy-Schenectady Road
Latham, NY 12110-2400
(518) 783-3932

If you have any questions regarding this letter, contact Tom McCartney at (607) 753-9334.

Sincerely,

Mark W. Clough

ACTING FOR

Sherry W. Morgan
Field Supervisor

Enclosure

cc: NYSDEC, Watertown, NY (Regulatory Services)
NYSDEC, Latham, NY
COE, Buffalo, NY
EPA, Chief, Marine & Wetlands Protection Branch, New York, NY

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES IN NEW YORK

Common Name	Scientific Name	Status	Distribution
FISHES			
Sturgeon, shortnose*	*Acipenser brevirostrum*	E	Hudson River & other Atlantic coastal rivers
REPTILES			
Turtle, green*	*Chelonia mydas*	T	Oceanic summer visitor coastal waters
Turtle, hawksbill*	*Eretmochelys imbricata*	E	Oceanic summer visitor coastal waters
Turtle, leatherback*	*Dermochelys coriacea*	E	Oceanic summer resident coastal waters
Turtle, loggerhead*	*Caretta caretta*	T	Oceanic summer resident coastal waters
Turtle, Atlantic ridley*	*Lepidochelys kempii*	E	Oceanic summer resident coastal waters
BIRDS			
Eagle, bald	*Haliaeetus leucocephalus*	T	Entire state
Falcon, peregrine	*Falco peregrinus*	E	Entire state - re-establishment to former breeding range in progress
Plover, piping	*Charadrius melodus*	E	Great Lakes Watershed
		T	Remainder of coastal New York
Tern, roseate	*Sterna dougallii dougallii*	E	Southeastern coastal portions of state
MAMMALS			
Bat, Indiana	*Myotis sodalis*	E	Entire state
Cougar, eastern	*Felis concolor couguar*	E	Entire state - probably extinct
Whale, blue*	*Balaenoptera musculus*	E	Oceanic
Whale, finback*	*Balaenoptera physalus*	E	Oceanic
Whale, humpback*	*Megaptera novaeangliae*	E	Oceanic
Whale, right*	*Eubalaena glacialis*	E	Oceanic
Whale, sei*	*Balaenoptera borealis*	E	Oceanic
Whale, sperm*	*Physeter catodon*	E	Oceanic
MOLLUSKS			
Snail, Chittenango ovate amber	*Succinea chittenangoensis*	T	Madison County
Mussel, dwarf wedge	*Alasmidonta heterodon*	E	Orange County - lower Neversink River

* Except for sea turtle nesting habitat, principal responsibility for these species is vested with the National Marine Fisheries Service.

Region 5 - 08/11/95 - 2 pp.

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES IN NEW YORK (Cont'd)

Common Name	Scientific Name	Status	Distribution
BUTTERFLIES			
Butterfly, Karner blue	*Lycaeides melissa samuelis*	E	Albany, Saratoga, Warren, and Schenectady Counties
PLANTS			
Monkshood, northern wild	*Aconitum noveboracense*	T	Ulster, Sullivan, and Delaware Counties
Pogonia, small whorled	*Isotria medeoloides*	T	Entire state
Swamp pink	*Helonias bullata*	T	Staten Island - presumed extirpated
Gerardia, sandplain	*Agalinis acuta*	E	Nassau and Suffolk Counties
Fern, American hart's-tongue	*Phyllitis scolopendrium* var. *americana*	T	Onondaga and Madison Counties
Orchid, eastern prairie fringed	*Platanthera leucophea*	T	Not relocated in New York
Bulrush, northeastern	*Scirpus ancistrochaetus*	E	Not relocated in New York
Roseroot, Leedy's	*Sedum integrifolium* ssp. *Leedyi*	T	West shore of Seneca Lake
Amaranth, seabeach	*Amaranthus pumilus*	T	Atlantic coastal plain beaches
Goldenrod, Houghton's	*Solidago houghtonii*	T	Genesee County

E=endangered T=threatened P=proposed

Region 5 - 08/11/95 - 2 pp.

REFERENCE 28

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wildlife Resources Center
700 Troy-Schenectady Road
Latham, NY 12110-2400
(518) 783-3932

August 22, 1995

Julia A. Gilbert
EMCON
Wehran-New York, Inc.
666 East Main Street, PO Box 2006
Middletown, NY 10940-0858

Dear Ms. Gilbert:

We have reviewed the New York Natural Heritage Program files with respect to your recent request for biological information concerning EPA hazardous waste investigation of the UNIVERSAL WASTE SITE, as indicated on your enclosed map, located in the City of Utica, Oneida County, New York State.

Enclosed is a computer printout covering the area you requested to be reviewed by our staff. The information contained in this report is considered <u>sensitive</u> and may not be released to the public without permission from the New York Natural Heritage Program.

Our files are continually growing as new habitats and occurrences of rare species and communities are discovered. In most cases, site-specific or comprehensive surveys for plant and animal occurrences have not been conducted. For these reasons, we can only provide data which have been assembled from our files. We cannot provide a definitive statement on the presence or absence of species, habitats or natural communities. This information should <u>not</u> be substituted for on-site surveys that may be required for environmental assessment.

This response applies only to known occurrences of rare animals, plants and natural communities and/or significant wildlife habitats. You should contact our regional office, Division of Regulatory Affairs, at the address <u>enclosed</u> for information regarding any regulated areas or permits that may be required (e.g., <u>regulated wetlands</u>) under State Law.

If this proposed project is still active one year from now we recommend that you contact us again so that we can update this response.

Sincerely,
Information Services
New York Natural Heritage Program

Encs.
cc: Reg. 6, Wildlife Mgr.
Reg. 6, Fisheries Mgr.

BIOLOGICAL AND CONSERVATION DATA SYSTEM - ELEMENT OCCURRENCE REPORT, 18 AUG 1995
Prepared by N.Y.S.D.E.C. Natural Heritage Program, Latham New York

(This report contains sensitive information which should be treated in a sensitive manner. Refer to the users guide for explanation of codes and ranks.)

* COUNTY & TOWN	USGS TOPO MAP/ LAT. & LONG.	PREC-ISION	LAST SEEN	EO RANK	SCIENTIFIC AND COMMON NAME	ELEMENT TYPE	NY STATUS	US STATUS	HERITAGE RANKS	OFFICE USE	OFFICE USE
* ONEIDA											
1 CITY OF UTICA MARCY	UTICA EAST 430655 751413	M		H	CHLIDONIAS NIGER BLACK TERN	BIRD	P SC	C2	G4 S2	ESU	4307512 2
CITY OF UTICA MARCY	UTICA EAST 430655 751413	M		H	CISTOTHORUS PLATENSIS SEDGE WREN	BIRD	P SC		G5 S2	ESU	4307512 2

2 Records Processed

Both habitats located 1.5 miles
WNW of site

REFERENCE # 28
PAGE 2 OF 5

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

REGULATORY AFFAIRS REGIONAL OFFICES

REGION	COUNTIES	NAME	ADDRESS AND PHONE NO.
Region 1	Nassau Suffolk	Robert Greene Permit Administrator	Loop Road, Bldg. 40 SUNY Stony Brook, NY 11790-2356 (516) 751-1389
Region 2	New York City	John Ferguson Permit Administrator	Hunters Point Plaza 4740 21st Street Long Island City, NY 11101-5407 (718) 482-4997
Region 3	Dutchess Orange Putnam Rockland, Sullivan Ulster, Westchester	Margaret Duke Permit Administrator	21 South Putt Corners Road New Paltz, NY 12561-1696 (914) 256-3032
Region 4	Albany Columbia Delaware Greene, Montgomery, Otsego Rensselaer, Schenectady, Schoharie	William J. Clarke Permit Administrator	2176 Guilderland Avenue Schenectady, NY 12306-4498 (518) 382-0680
Region 5	Clinton Essex Franklin Fulton, Hamilton Saratoga, Warren, Washington	Richard Wild Permit Administrator	Route 86 Ray Brook, NY 12977 (518) 891-1370
Region 6	Herkimer Jefferson Lewis Oneida, St. Lawrence	Randy Vaas Permit Administrator	State Office Building 317 Washington Street Watertown, NY 13601 (315) 785-2246
Region 7	Broome Cayuga Chenango Cortland, Madison, Onondaga Oswego, Tioga, Tompkins	Robert Torba Permit Administrator	615 Erie Blvd. West Syracuse, NY 13204-2400 (315) 426-7439
Region 8	Chemung Genesee Livingston Monroe, Ontario, Orleans Schuyler, Seneca, Steuben Wayne, Yates	Albert Butkas Permit Administrator	6274 East Avon-Lima Road Avon, NY 14414 (716) 226-2466
Region 9	Allegany Cattaraugus Chautauqua Erie, Niagara, Wyoming	Steven Doleski Permit Administrator	270 Michigan Avenue Buffalo, NY 14203-2999 (716) 851-7165

USERS GUIDE TO NATURAL HERITAGE DATA

DATA SENSITIVITY: The data provided in these reports is sensitive and should be treated in a sensitive manner. The data is for your in-house use and may not be released to the general public or incorporated in any public document without prior permission from the Natural Heritage Program.

BIOLOGICAL AND CONSERVATION DATA SYSTEM (BCD) ELEMENT OCCURRENCE REPORTS:

COUNTY NAME: County where the element occurrence is located.
TOWN NAME: Town where the element occurrence is located.
USGS 7 1/2' TOPOGRAPHIC MAP: Name of 7.5 minute US Geological Survey (USGS) quadrangle map (scale 1:24,000).
LAT: Centrum latitude coordinates of the location of the occurrence. Important: latitude and longitude must be used with PRECISION (see below). For example, the location of an occurrence with M (minute) precision is not precisely known at this time and is thought to occur somewhere within a 1.5 mile radius of the given latitude/longitude coordinates.
LONG: Centrum longitude coordinates of the location of the occurrence. See also LAT above.
PRECISION: S - seconds: Location known precisely. (within a 300' or 1-second radius of the latitude and longitude given.
M - minutes: Location known only to within a 1.5 mile (1 minute) radius of the latitude and longitude given.
SIZE (acres): Approximate acres occupied by the element at this location.
SCIENTIFIC NAME: Scientific name of the element occurrence.
COMMON NAME: Common name of the element occurrence.
ELEMENT TYPE: Type of element (i.e. plant, community, other, etc.)
LAST SEEN: Year element occurrence last observed extant at this location.
EO RANK: Comparative evaluation summarizing the quality, condition, viability and defensibility of this occurrence. Use in combination with LAST SEEN and PRECISION.
- A-E = Extant: A=excellent, B=good, C=marginal, D=poor, E=extant but with insufficiently data to assign a rank of A - D.
- F = Failed to find. Did not locate species, but habitat is still there and further field work is justified.
- H = Historic. Historic occurrence without any recent field information.
- X = Extirpated. Field/other data indicates element/habitat is destroyed and the element no longer exists at this location.

NYS STATUS - animals: Categories of Endangered and Threatened species are defined in New York State Environmental Conservation Law section 11-0535. Endangered, Threatened, and Special Concern species are listed in regulation 6NYCRR 182.5.
- E = Endangered Species: any species which meet one of the following criteria:
  1) Any native species in imminent danger of extirpation or extinction in New York.
  2) Any species listed as endangered by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.
- T = Threatened Species: any species which meet one of the following criteria:
  1) Any native species likely to become an endangered species within the foreseeable future in NY.
  2) Any species listed as threatened by the U.S. Department of the Interior, as enumerated in the Code of the Federal Regulations 50 CFR 17.11.
- SC = Special Concern Species: those species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York. Unlike the first two categories, species of special concern receive no additional legal protection under Environmental Conservation Law section 11-0535 (Endangered and Threatened Species).
- P = Protected Wildlife (defined in Environmental Conservation Law section 11-0103): wild game, protected wild birds, and endangered species of wildlife.
- U = Unprotected (defined in Environmental Conservation Law section 11-0103): the species may be taken at any time without limit; however a license to take may be required.
- G = Game (defined in Environmental Conservation Law section 11-0103): any of a variety of big game or small game species as stated in the Environmental Conservation Law; many normally have an open season for at least part of the year, and are protected at other times.

NYS STATUS - plants: The following categories are defined in regulation 6NYCRR part 193.3 and apply to New York State Environmental Conservation Law section 9-1503.
- (blank) = no state status
- E = Endangered Species: listed species are those with:
  1) 5 or fewer extant sites, or
  2) fewer than 1,000 individuals, or
  3) restricted to fewer than 4 U.S.G.S. 7 1/2 minute topographical maps, or
  4) species listed as endangered by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.
- T = Threatened: listed species are those with:
  1) 6 to fewer than 20 extant sites, or
  2) 1,000 to fewer than 3,000 individuals, or
  3) restricted to not less than 4 or more than 7 U.S.G.S. 7 and 1/2 minute topographical maps, or
  4) listed as threatened by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.
- R = Rare: listed species have:
  1) 20 to 35 extant sites, or
  2) 3,000 to 5,000 individuals statewide.
- U = Unprotected
- V = Exploitably vulnerable: listed species are likely to become threatened in the near future throughout all or a significant portion of their range within the state if causal factors continue unchecked.

NYS STATUS - communities: At this time there are no categories defined for communities.

continued on next page

FEDERAL STATUS (plants and animals): The categories of federal status are defined by the United States Department of the Interior as part of the 1974 Endangered Species Act (see Code of Federal Regulations 50 CFR 17). The species listed under this law are enumerated in the Federal Register vol. 50, no. 188, pp. 39526 - 39527.

(blank) = No Federal Endangered Species Act status.
LE = The taxon is formally listed as endangered.
LT = The taxon is formally listed as threatened.
LELT = The taxon is formally listed as endangered in part of its range and threatened in other parts.
PE = The taxon is proposed as endangered.
PT = The taxon is proposed as threatened.
C1 = Candidate, category 1 - There is sufficient information to list the taxon as endangered or threatened.
C2 = Candidate, category 2 - The taxon may be appropriate for listing but more data are needed.
3A = The taxon considered extinct by the U. S. Fish and Wildlife Service.
3B = The taxon is no longer considered taxonomically distinct by the U.S. Fish and Wildlife Service & thus not appropriate for listing.
3C = The taxon has been shown to be more abundant, widespread, or better protected than previously thought and therefore not in need of official listing.
* = The taxon is possibly extinct.
** = The taxon is thought to be extinct in the wild but extant in cultivation.

Additional codes:
(C2NL) = Heritage code indicating that the taxon is a candidate in some areas, not listed in other areas.
(E/SA) = Heritage code indicating that the taxon is endangered because of similarity of appearance to other endangered species or subspecies.

FEDERAL STATUS (communities): At this time there are no categories defined for communities.

GLOBAL AND STATE RANKS (animals, plants, communities and others): Each element has a global and state rank as determined by the NY Natural Heritage Program. These ranks carry no legal weight. The global rank reflects the rarity of the element throughout the world and the state rank reflects the rarity within New York State. Infraspecific taxa are also assigned a taxon rank to reflect the infraspecific taxon's rank throughout the world.

GLOBAL RANK:
G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences), or very few remaining acres, or miles of stream) or especially vulnerable to extinction because of some factor of its biology.
G2 = Imperiled globally because of rarity (6 - 20 occurrences, or few remaining acres, or miles of stream) or very vulnerable to extinction throughout its range because of other factors.
G3 = Either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restricted range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.
G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GH = Historically known, with the expectation that it might be rediscovered.
GX = Species believed to be extinct.
GU = Status unknown.

STATE RANK:
S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
S2 = Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
S3 = Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
S4 = Apparently secure in New York State.
S5 = Demonstrably secure in New York State.
SH = Historically known from New York State, but not seen in the past 15 years.
SX = Apparently extirpated from New York State.
SA = Accidental or casual in the state.
SE = Exotic, not native to New York State.
SP = Element potentially occurs in the state but there are no occurrences reported.
SR = Reported in the state but without persuasive documentation.
SU = Status unknown.
TAXON (T) RANK: The T-ranks (T1 - T5) are defined the same way the Global ranks (G1 - G5) are but the T-rank only refers to the rarity of the subspecific taxon of the species as a whole.
T1 through T5 = See Global Rank definitions above.
Q = Indicates a question exists whether or not the taxon is a good taxonomic entity.
? = Indicates a question exists about the rank.

OFFICE USE: Information for use by the Natural Heritage Program.

SIGNIFICANT HABITAT REPORTS:
REPORT ID: Significant habitat file code.
NAME OF AREA: Site name where the significant habitat is located.
TYPE OF AREA: Type of significant habitat.
COUNTY/TOWN OR CITY: County and town where the significant habitat is located.
QUADRANGLE: Name of the USGS 7.5 minute topographic map where the significant habitat is located.
LATITUDE: Latitude coordinates (degrees, minutes, seconds) for the location of the significant habitat.
LONGITUDE: Longitude coordinates for the location of the significant habitat.

REFERENCE 29

REFERENCE # 24
PAGE 1 OF 1

Wehran EMCON Northeast

TELEPHONE CONVERSATION MEMORANDUM

Client Ebasco

Proj. No. 85595-001.000

Project Universal Waste

Date 9-12-95

Time 3:15 p

Call To/From Jack Hasse

Representing NYSDEC Utica Office

Phone No. (315) 793-2554

Summary of Conversation ~ fishery production / Recreational fishing in Mohawk R.

The Mohawk River is fished heavily upstream, downstream and adjacent to the site. Fish are ingested.

Fishing occurs from any road crossing the River.

15 yrs. ago (1982) survey performed by Jack Hasse found that 50,000 to 75,000 people fished the river in Oneida & Herkimer Counties.

He has no estimate of annual fish production

There is a fish advisory for carp = PCBs from Utica Harbor. New data is coming out. The preliminary results indicate that Tiger muskey, northern pike and bass are also affected.

Copies To File

By Julia A Gilbert

10.008.6/94.4241099

REFERENCE 30

A century of commitment...
a foundation for the future

New York State Department of Environmental Conservation
DIVISION OF FISH AND WILDLIFE

Bureau of Environmental Protection
50 Wolf Road Room 530 Albany, NY 12233-4756

EARTH DAY 25 1995 ENVIRONMENTAL PARTNERS
Michael D. Zagata
Commissioner

August 18, 1995

Julia A. Gilbert
Wehran-New York, Inc.
666 East Main Street
P. O. Box 2006
Middletown, NY 10940-0858

Dear Ms. Gilbert:

The following is in response to your request for information on the fisheries of the Mohawk River and environs in the vicinity of the Universal Waste Site, Utica, New York.

The Mohawk River supports a diverse warmwater fishery with smallmouth bass, walleye and yellow perch as the predominant predators. Specific information on the composition of the fishery and its recreational use is better obtained from Jack Hasse (telephone 315-793-2554) of our Utica suboffice. The Mohawk River is not a commercial fishery resource.

Chemical residues in fish are a concern. Polychlorinated biphenyls in carp are the basis of an "EAT NONE" advisory for the Mohawk River between Oriskany and West Canada Creeks; this includes the Utica area. Extensive collections of fish to further assess the extent of PCB contamination of the Mohawk River were conducted in 1994. The chemical analyses have just been completed and data analysis has begun. Unfortunately, it is too early to provide any further indication of the chemical residue levels in the fishery at this time. Please see "Health Advisory: Chemicals in Sportfish and Game 1995-1996" which is enclosed. Some older data for chemical residues in Mohawk River fish from more downstream locations is found in "Toxic Substances in Fish and Wildlife: Analyses since May 1, 1982" (enclosed).

If I may be of further assistance, please contact me.

Sincerely,

Lawrence C. Skinner

Lawrence C. Skinner
Section Head
Environmental Monitoring Section

Enclosures

cc. J. Hasse w/ copy of incoming
R. Koeppicus

LCS1/Wehran.101

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PAGE 1 OF 6

DEC
PUBLICATION

Technical Report 87-4 (BEP)
Division of Fish and Wildlife

Toxic Substances in Fish and Wildlife Analyses since May 1, 1982

Volume 6

September, 1987

New York State/Department of Environmental Conservation

TABLE OF CONTENTS

INTRODUCTION

This issue reflects analyses performed on some of the projects underway or completed since May, 1982.

The reported data in the current issue (Volume 6) represents 58,997 analytical data points for organochlorines and heavy metals from 5,480 individual or composite samples of 15,045 fish and other biological specimens. These analyses were useful in interpreting the dynamics and effects of toxic substances in the environment and supplied valuable input into management decisions for New York's fish and wildlife resources.

To assist in the interpretation of some of the data which is presented in a summarized tabular format throughout this report, the following list provides the current U.S. Food and Drug Administration guidelines for contaminant residues in fish destined for interstate commerce. The State of New York generally uses these numbers in establishing health advisories on the consumption of fish from specific waters.

Compound	Concentration guideline in parts per million (ppm)
PCB	2.0
DDT and its metabolites	5.0
Aldrin/dieldrin	0.3
Endrin	0.3
Heptachlor and heptachlor epoxide	0.3
Lindane	None established
Mirex	0.1
Mercury (measured as methyl mercury)	1.0
Chlordane	0.3
HCB (hexachlorobenzene)	None established

New York State uses 1.0 ppm total mercury for health advisory purposes since the majority of fish contamination in older specimens (i.e. edible sizes) is in the more toxic methyl form (U.S. Environmental Protection Agency, 1985; Eisler, 1987).

The current (1987-88) health advisory issued by the New York State Department of Health is reproduced here for reference purposes. This advisory is published as part of the "New York State Fishing, Small Game Hunting, Trapping Regulations Guide".

1980 STATEWIDE TOXIC SUBSTANCES MONITORING PROGRAM

Part I-A

LOCATION	SPECIES	NO. OF FISH ANALYZED	NO. OF ANALYSES	AVERAGE LENGTH (mm)	LENGTH RANGE (mm)	AVERAGE WEIGHT (g)	WEIGHT RANGE (g)	AVERAGE PCB (ppm)	PCB RANGE (ppm)	AVERAGE DDT (ppm)	DDT RANGE (ppm)
Buffalo River	Carp	13	2	504	432-602	2247	1451-3266	0.75	0.69-0.82	0.30	0.29- 0.30
Canadice Lake	Lake trout	14	4	569	477-708	1953	1040-3760	4.46	1.37-9.18	0.17	0.08- 0.34
Canandaigua Lake	Rainbow trout	3	1	483	475-490	1289	1175-1361	0.67	--	0.29	--
	Lake trout	10	3	519	412-676	1232	520-3400	1.43	1.20-2.91	0.97	0.79- 2.46
Keuka Lake	Rainbow trout	4	1	495	458-518	1353	990-1758	0.12	--	2.50	--
	Lake trout	31	8	582	375-797	2080	413-5850	0.44	0.08-1.97	6.20	2.04-19.75
Seneca Lake	Rainbow trout	9	2	459	416-508	957	757-1134	0.13	0.12-0.14	0.19	0.18- 0.20
	Lake trout	55	8	609	334-764	2441	328-9340	0.66	0.15-2.12	1.10	0.27- 2.07
Cayuga Lake	Lake trout	23	4	500	385-686	1313	485-2830	0.44	0.23-0.60	0.35	0.14- 0.43
Skaneateles Lake	Lake trout	30	2	434	380-494	671	383- 896	0.41	0.34-0.46	0.56	0.46- 0.63
Onondaga Lake	Smallmouth bass	22	2	333	261-403	470	190- 821	0.20	0.17-0.21	0.09	0.07- 0.10
Chateaugay River	Brown trout	16	2	263	227-316	185	108- 280	0.15	--	0.05	--
Mohawk River											
Delta Lake	Walleye	20	2	356	292-411	410	210- 650	0.01	<0.01-0.02	<0.01	<0.01- 0.01
Rome	Walleye	14	2	365	312-429	469	275- 825	0.26	0.24-0.30	0.03	0.02- 0.03
Utica	Walleye	5	2	399	315-511	697	295-1502	0.67	0.39-0.85	0.01	<0.01-<0.01
	Yellow perch	6	1	241	202-276	170	90- 275	0.47	--	<0.01	--
Little Falls	Smallmouth bass	11	3	266	200-412	152	104- 608	1.14	0.62-1.61	0.04	<0.01- 0.06

*Analysis included DDT and its metabolites.

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1980 STATEWIDE TOXIC SUBSTANCES MONITORING PROGRAM

Part I-B

LOCATION	SPECIES	AVERAGE DIELDRIN* (ppm)	DIELDRIN RANGE (ppm)	AVERAGE ENDRIN (ppm)	ENDRIN RANGE (ppm)	AVERAGE HEPTACHLOR** (ppm)	HEPTACHLOR RANGE (ppm)	AVERAGE LINDANE*** (ppm)	LINDANE RANGE (ppm)	AVG. MIREX (ppm)	MIREX RANGE (ppm)
Buffalo River	Carp	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Canadice Lake	Lake trout	<0.03	<0.01- 0.12	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	0.01	<0.01- 0.01	<0.01	<0.01-<0.01
Canandaigua Lake	Rainbow trout	<0.01	--	<0.01	--	<0.01	--	<0.01	--	<0.01	--
	Lake trout	<0.01	<0.01- 0.02	<0.01	<0.01-<0.01	<0.01	<0.01- 0.02	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Keuka Lake	Rainbow trout	0.02	--	<0.01	--	<0.01	--	<0.01	--	<0.01	--
	Lake trout	0.04	0.01- 0.08	<0.01	<0.01- 0.02	<0.01	<0.01- 0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Seneca Lake	Rainbow trout	0.02	0.01- 0.02	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
	Lake trout	0.04	0.01- 0.08	<0.01	<0.01- 0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Cayuga Lake	Lake trout	0.01	0.01- 0.02	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Skaneateles Lake	Lake trout	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Onondaga Lake	Smallmouth bass	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Chateaugay River	Brown trout	<0.01	--	<0.01	--	<0.01	--	<0.01	--	<0.01	--
Mohawk River											
Delta Lake	Walleye	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Rome	Walleye	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
Utica	Walleye	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01
	Yellow perch	<0.01	--	<0.01	--	<0.01	--	<0.01	--	<0.01	--
Little Falls	Smallmouth bass	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01	<0.01	<0.01-<0.01

*Analysis included aldrin

** Analysis included heptachlor epoxide

*** Analysis included other associated compounds of HCH

1980 STATEWIDE TOXIC SUBSTANCES MONITORING PROGRAM

Part I-C

LOCATION	SPECIES	AVERAGE MERCURY (ppm)	MERCURY RANGE (ppm)	AVERAGE CHLORDANE (ppm)	CHLORDANE RANGE (ppm)
Buffalo River	Carp	0.15	0.14-0.16	0.05	0.05-0.06
Canadice Lake	Lake trout	0.27	0.18-0.38	0.05	0.03-0.08
Canandaigua Lake	Rainbow trout	0.25	--	0.02	--
	Lake trout	0.31	0.28-0.54	0.08	0.05-0.16
Keuka Lake	Rainbow trout	0.22	--	0.03	--
	Lake trout	0.37	0.23-0.57	0.08	0.03-0.32
Seneca Lake	Rainbow trout	0.16	0.16-0.16	0.02	0.02-0.02
	Lake trout	0.45	0.10-0.66	0.11	0.03-0.18
Cayuga Lake	Lake trout	0.34	0.26-0.48	0.07	0.04-0.09
Skaneateles Lake	Lake trout	0.70	0.59-0.78	0.05	0.04-0.06
Onondaga Lake	Smallmouth bass	0.92	0.70-1.02	0.01	0.01-0.01
Chateaugay River	Brown trout	0.18	--	< 0.01	--
<u>Mohawk River</u>					
Delta Lake	Walleye	0.33	0.22-0.39	< 0.01	< 0.01- 0.01
Rome	Walleye	0.18	0.18-0.18	0.01	0.01-0.01
Utica	Walleye	0.19	0.14-0.27	< 0.01	< 0.01-0.01
	Yellow perch	0.10	--	0.01	--
Little Falls	Smallmouth bass	0.27	0.22-0.40	0.02	0.02-0.02

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Projects (continued)

3/2/92 Universal Waste ① ③

Weather: Cloudy, cool (~30°F) slight breeze ~5 mph.

1315. arrive at site, doing ~~out~~ recon of area around site.

1300 Arrive at Universal office.

1305 Meet with Mr Joseph Jiampietro (pres, Univ waste)

1344 mobilize to truck to begin recon.

1348 Background reading with OVA = 0.2 ppm

1352 Arrive at GW01; well open

1353 OVA borehole = 9 ppm BZ = NAB

1354 OVA BH - 1.5 ppm ; BZ = NAB
Well in good condition; no lock.

1355 Photo # 2 well GW01 facing NW

1356 mobilize to next well.

1400 Arrive well GW04; well open (no lock, no cap).

1401 OVA. BH = NAB ; BZ = NAB ~~Concrete~~ steel barrier around well for protection
Well in good shape. on 3/2/92

3/2/92

Ref 32
Page 1 of 7

1402 Photo # 3 : well GW07 looking into metal barrier.

1403 Photo # 4 : well GW07 from outside barrier facing West

1404 mobilize to next well
Site has large piles of scrap metal 15-20 ft high. Metal protruding from ground. Must be very cautious as these metal scraps could easily injure workers. Ground is [illegible] ground, [illegible].

1408 Arrive at ~~GW06~~ GW06. Well locked; no one has key. Kenny will get bolt cutters. In the meantime will go to next well. Note: GW06 well casing (outer) leaning.

1410 Photo 5: Well GW06 facing SW. Well located just east (downgradient) of former PCB spill

1411 mobilize to next well.

1420 Arrive at ~~AA~~ GW05. Well not locked; no cover; no cap.
OVA: BH NHB; BZ = NHB

[signature] 3/2/92

Well in good condition.

1421 Photo # 6 : GW05 facing North

1422 mobilize to well GW06.
(note: a fox was spotted on-site on way to GW05; fox was located midway between ~~AA~~ GW06 and GW05.

1426 return to GW06; well open
OVA: BH = >1000 ppm BZ = NHB
BH after 1 min = 70 ppm
BH after 5 min = 60-90 ppm

1426 Inner pvc casing (riser) cracked. Can get bailer into well. Will be able to sample. Note draining ditch [illegible].

1427 mobilizing to next well

1429 Stained soil / sheen on ground on roadway (dirt road) near main building (see site sketch). This should be sampled. Mr. Tranquillo has no objections.
Shearer can be seen from here. This machine reduces large scrap metal to

[signature] 3/2/92

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smaller shreds. Also note several (6-7) cranes operating on site. Large trucks entering site.

1433 Arrive GW03. cap; no lock.
OVA: BH = NAB ; BZ = NAB
well in good condition

1434 Photo 7; GW03 facing NE

1436 mobilize to main building.

1440 Ebasco crew and T. Abbot leave site. Agree to meet at site 2/9/92 @ 0800 for sampling.

1449 Photo 8 area on West side of Universal building where TCE degreasing formally occurred. Note tank marked "TCE"; facing E

1450 Photo 9 area W of Universal site; facing west from small parking lot (near GW01)

1453 Off site recon.

1456 Photo 10 of Universal site from south side facing N

1457 Photo 11 photo of site from same

3/2/92

location facing NW

Photo 12 from same location, facing NE

1500 Photo 13 facing West down Wuitz Ave

1501 Photo 14 facing SW; area upgradient of Universal waste site.

1525 Surveyed businesses down Wuitz Ave (see sketch). Photo #15 facing East, down Wuitz Ave toward Universal.

1535 Leaving area; returning to Lyndhurst.

notes: Drainage ditch East of site not on Universal property. On property belonging to United Contractors.

Scrap on-site included empty drums, old UST's, old vehicles.

Entire site is located in somewhat of a low area in reference to surrounding terrain. Pooled water (ice) noticed in many places.

3/2/92

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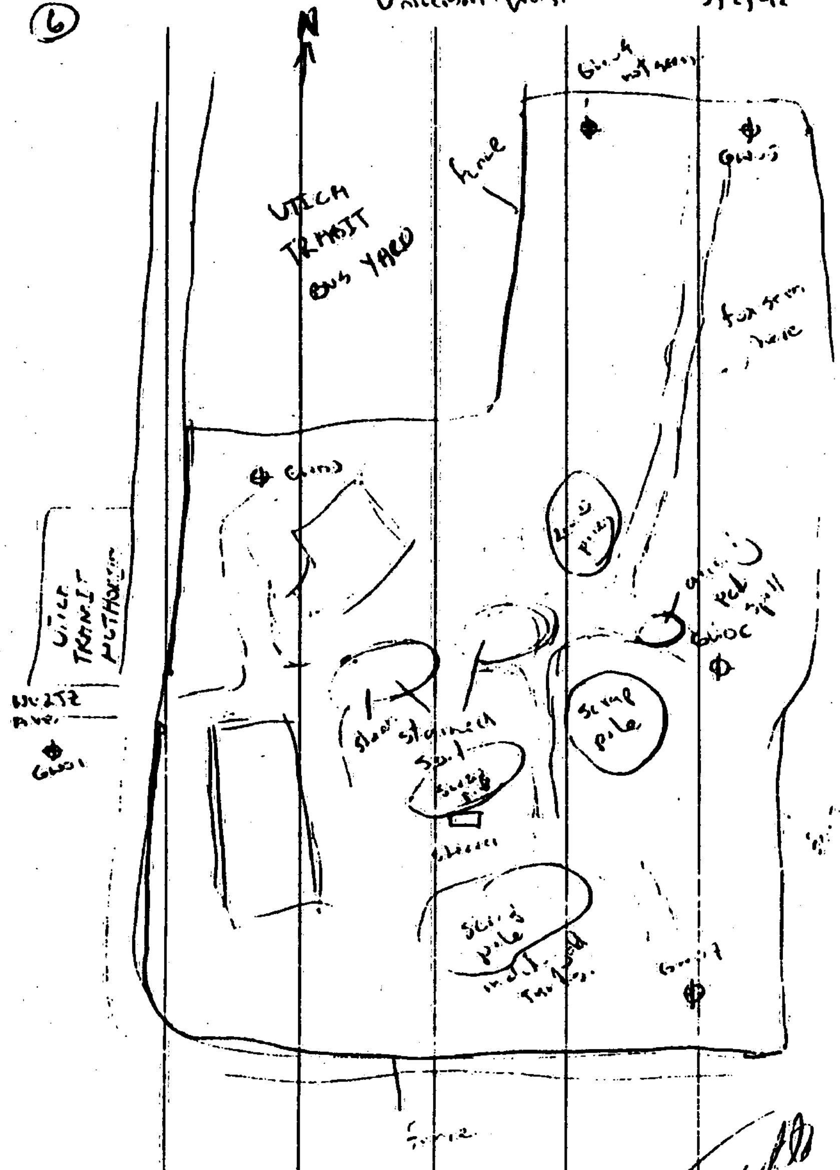
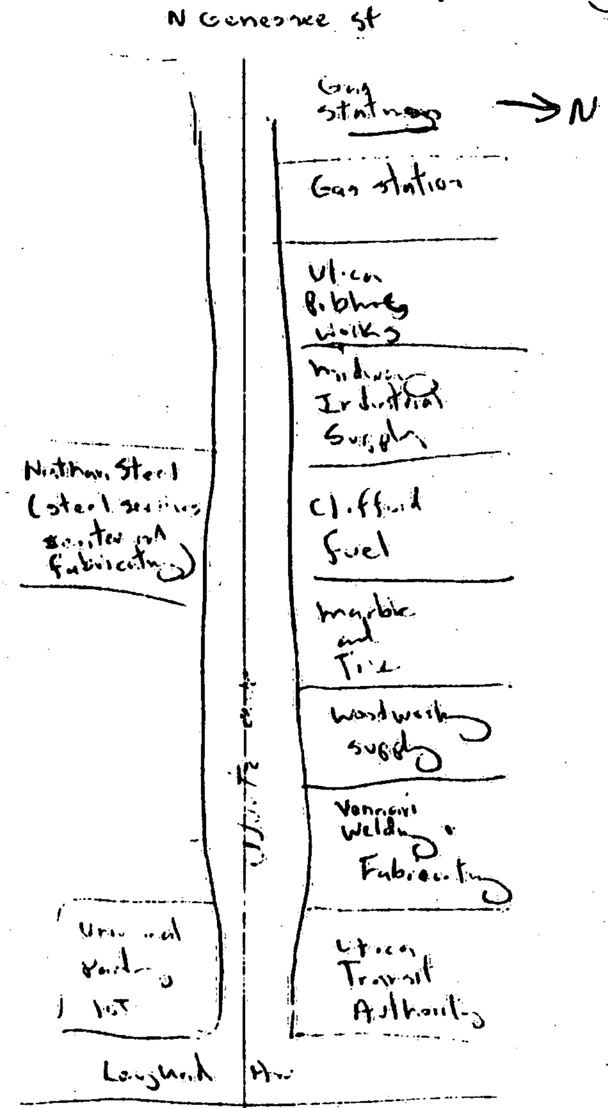
(6) Universal Waste 3/2/92



site sketch

3/2/92

3/2/92 Universal Waste (7)



Universal Waste
Area Businesses and Industry

3/2/92

Ref 32
pg 47

Weather: Cloudy, foggy. 50°F Calm

0800 D. White, D. Fulton A. Patterson of Ebasco on site. Set up at first well

0803 D. White off site to buy film

0810 D White returns. T Abbott on-site.

0815 Crew and T Abbot to Universal office to meet with owner J. Jiampietro.

DEC would like copy of our report
Mr. Norman Parratt DEC
50 Wolf Rd
Albany, NY. 12233

cc Mr. Ritnik

given copy of Second Interim Decision by NYSDEC.

0840 Return to truck to get equipment together Separating bottles, labeling

D. [illegible]
3/9/92

0930 Trip blank prepared
0945 DI Blank poured
1000 Field blank FB01 poured through bailer
1015 Field blank FB02 poured through auger bucket

1106 arrive at ~~GW03~~ GW04 DW 3/9/92
1115 DW returns to truck to get equipment.
DTW 9.17 ft; well depth 25 ft; volume 10.32 gallons.

Volume	Temp °C	Cond	pH	Time
Initial	9	775	6	1125
1	10	1000	6	1137
2	10	1100	6	1149
3	10	1100	6	1201

1133 DW returns to GW04
1210 GW04 sampled
1230 Photo 1 GW04 facing North.
1232 mobilize to GW03

David C. White
3/9/92

Ref. 32
Page 507

1237 arrive at GW03
1238 Well open OVA = NAB (BH)
OVA = NAB (BZ)

1241 DTW = 8.42 ft;
Total Depth = 25 feet
1 volume = 10.81 gallons

Volume	Temp	Cond	ph	Time	notes
Init	10	800	6	1245	
1	10	1100	6	1250	
2	9	1200	6	1300	
3	9	1250	6	1320	

1246 photo 2 GW03 facing north (closeup)
1247 photo 3 GW03 facing north (off well). D Fulton bailing.

1325 Soil Sample SS04 taken. Also collected Duplicate SS04 D 6"-12" depth

[signature] 3/9/92

1330 GW03 sample taken
1333 Photo 4 Well GW03 and surface soil location SS04 facing WNW.
NOTE: Hard hat on hand auger handle to left of photo is SS04
1334 Photo 5 same area as photo 4, closer. facing WNW

1358 At GW02; well open;
OVA = 40 ppm (BH)
OVA = NAB (BZ)
1359 Inner casing broken; attempting to get clearance for bailer
1408 Cannot get enough clearance to drop bailer down well. Will not sample GW02.

1411 Photo 6 GW02 facing SSW. Note that well casing is leaning
1412 D. Fulton mobilizing to GW01 to begin bailing; D. White, A. Patterson mobilize to SS03

[signature] 3/9/92

Ref 32
Page 6 of 7

(12) Universal Waste 3/9/92

1430 SS03 taken 0-6"
could not auger past 6" due
to brick (refusal at 6")

1435 Photo 7; SS03 location facing W.

1445 SS02 taken 0-6"; refusal at
6" depth due to bricks

1458 Photo 8 SS02 location facing N

1459 Photo 9 SS02 location ~6 ft from
boring; look downward, (N to top
of photo. Showing sheen.

1510 Photo 10 site from SS02 location
facing West.

1511 mobilize to GW01

1513 Arrive at GW01;

Volume	Temp °C	Cond	pH	Time	notes
Initial	8	600	6	1425	
1	10	600	6	1435	
2	10	600	6	1450	
3	10	600	6	1505	

3/9/92

3/9/92 Universal Waste (13)

1610 well sampled

1612 DW mobs to SS01

1625 SS01 sampled

1630 packing equipment

1645 T. Abbot offsite

1650 Ebasco crew off site

3/9/92

Ref. 32
Pg 7

REFERENCE 33

43560 SQ'/AC

Planemetric Survey - Sensitive Environments Wetlands

85595.001.000

9/28/95

1/4 MILE	1/2 MILE	1 MILE	2 MILE	3 MILES	~~4 mile~~
37.65 AC	87.24 AC	588.61 AC	6729.99 AC	6170.3 AC	

4 MILES = 3464.63 AC

1/4 MILE

0.43
.03
0.40
.01
$0.41 \times 2000^2 \div 43560 = 37.65$ AC.

1/2 MILE

.69
.07
.08
.01
.03
.07
$.95 \times 2000^2 * 43560 = 87.235$

1 mile

2.82	0.01	0.15
0.10	0.01	0.03
0.39	0.02	0.55
0.02	1.32	0.06
0.03	.86	0.04

$6.41\ SI \times 2000^2 \div 43560 = 588.61$

2 MILE
0.02
0.01
0.15
1.41
0.10
0.02
0.86
0.80
0.07
0.18
0.04
0.01
0.03
0.01
0.01
0.03
0.01
0.01
7.93
60.95
0.01
0.03
0.01
0.01

73.29 x 2000² ÷ 43560 = 6729.99 AC

3 MILE	
1.01	14.45
1.09	3.06
0.015	0.01
4.17	0.06
0.03	0.07
0.22	0.03
0.28	0.04
0.02	0.02
0.03	0.03
0.02	
0.01	
0.01	
1.57	
0.13	
0.03	
0.01	
0.02	
0.01	
0.27	
0.48	

67.20 x 2000² ÷ 43560 = 6170.3 A

4 MILES	
0.05	0.34
3.00	0.64
0.04	0.03
0.02	0.06
25.51	0.09
0.50	0.05
0.01	0.03
0.01	0.02
2.92	
0.66	
0.09	
3.13	
0.51	
0.02	

37.73 x 2000² ÷ 43560

3464.63 ac

Based on NWI Wetland Maps for the 4 mile Radius Ring

REFERENCE # 33
PAGE 3 OF 6

ORISKANY, N.Y.

NOTES TO THE USER

- Subsystems, Classes, Subclasses, and Water Regimes in *Italics* were developed specifically for NATIONAL WETLANDS INVENTORY mapping.
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions.

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Prepared by National Wetlands Inventory

1991

AERIAL PHOTOGRAPHY

DATE	5 85	DATE	
SCALE	1:58 000	SCALE	
TYPE	CIR	TYPE	

STUARINE — SYSTEM

2 — INTERTIDAL — SUBSYSTEM

AB — AQUATIC BED	RF — REEF	SB — STREAMBED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	SS — SCRUB SHRUB	FO — FORESTED	CLASS
A R d Vascular F ng Vascular *Unknown Submergent* *Unknown Surface*	2 Mollusc 3 Worm	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	Subclass

ESTUARINE — SYSTEM

2 — LITTORAL — SUBSYSTEM

RB — ROCK BOTTOM	UB — UNCONSOLIDATED BOTTOM	AB — AQUATIC BED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	OW — *OPEN WATER/ Unknown Bottom*	CLASS
B ck R le	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 *Unknown Submerg* 6 *Unknown Surface*	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent		Subclass

MODIFIERS

equately describe wetland and deepwater habitats one or more of the water regime, water chemistry
pplied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system

	WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
	Coastal Halinity	**Inland Salinity**	**pH Modifiers for all Fresh Water**			
Temporary Tidal Seasonal Tidal mipermanent Tidal manent Tidal nown gimes are only used in d freshwater systems	Hyperhaline 2 Euhaline 3 Mixohaline *(Brackish)* 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral Alkaline	g Organic n Mineral	b *Beaver* d *Partially Drained/Ditched* f Farmed	h *Diked/Impounded* r Artificial Substrate s *Spoil* x Excavated

619

PEMIB 55 PEMIE PEMIFH PFOIC POBFH

UTICA EAST, N.Y.

NOTES TO THE USER

- Subsystems, Classes, Subclasses, and Water Regimes in *Italics* were developed specifically for NATIONAL WETLANDS INVENTORY mapping.
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions.

U.S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

Prepared by National Wetlands Inventory

1991

AERIAL PHOTOGRAPHY

DATE: 4/ /86	DATE: / /
ALE: 1:58 000	SCALE:
YPE: CIR	TYPE:

STUARINE — SYSTEM

2 — INTERTIDAL — SUBSYSTEM

AB — AQUATIC BED	RF — REEF	SB — STREAMBED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	SS — SCRUB-SHRUB	FO — FORESTED
al ted Vascular ating Vascular nown Submergent 5 *Unknown Surface*	2 Mollusc 3 Worm	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*

CLASS — Subclass

ACUSTRINE — SYSTEM

2 — LITTORAL — SUBSYSTEM

RB — ROCK BOTTOM	UB — UNCONSOLIDATED BOTTOM	AB — AQUATIC BED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	OW — *OPEN WATER/ Unknown Bottom*
drock bble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

CLASS — Subclass

MODIFIERS

...ately describe wetland and deepwater habitats one or more of the water regime, water chemistry, ...applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system

	WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
	Coastal Halinity	**Inland Salinity**	**pH Modifiers for all Fresh Water**			
Temporary-Tidal Seasonal-Tidal Semipermanent-Tidal manent-Tidal nown gimes are only used in ed. freshwater systems	1 Hyperhaline 2 Euhaline 3 Mixohaline *(Brackish)* 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral i Alkaline	g Organic n Mineral	b *Beaver* d *Partially Drained/Ditched* f Farmed	h *Diked/Impounded* r Artificial Substrate s *Spoil* x Excavated

890

REFERENCE # 33
PAGE 5 OF 6

UTICA WEST, N.Y.

NOTES TO THE USER

- Subsystems, Classes, Subclasses, and Water Regimes in *Italics* were developed specifically for NATIONAL WETLANDS INVENTORY mapping
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions

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AERIAL PHOTOGRAPHY

DATE	5 85	DATE	
SCALE	1:58 000	SCALE	
TYPE	CIR	TYPE	

ESTUARINE — SYSTEM

2 — INTERTIDAL — SUBSYSTEM

CLASS: AB — AQUATIC BED; RF — REEF; SB — STREAMBED; RS — ROCKY SHORE; US — UNCONSOLIDATED SHORE; EM — EMERGENT; SS — SCRUB-SHRUB; FO — FORESTED

Subclass:

AB — AQUATIC BED	RF — REEF	SB — STREAMBED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	SS — SCRUB-SHRUB	FO — FORESTED
Algal; Rooted Vascular; Floating Vascular; 5 *Unknown Submergent*; 6 *Unknown Surface*	2 Mollusc; 3 Worm	1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic	1 Bedrock; 2 Rubble	1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic	1 Persistent; 2 Nonpersistent	1 Broad-Leaved Deciduous; 2 Needle-Leaved Deciduous; 3 Broad-Leaved Evergreen; 4 Needle-Leaved Evergreen; 5 Dead; 6 *Deciduous*; 7 *Evergreen*	1 Broad-Leaved Deciduous; 2 Needle-Leaved Deciduous; 3 Broad-Leaved Evergreen; 4 Needle-Leaved Evergreen; 5 Dead; 6 *Deciduous*; 7 *Evergreen*

— LACUSTRINE — SYSTEM

2 — LITTORAL — SUBSYSTEM

RB — ROCK BOTTOM	UB — UNCONSOLIDATED BOTTOM	AB — AQUATIC BED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	OW — *OPEN WATER* *Unknown Bottom*
Bedrock; Rubble	1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic	1 Algal; 2 Aquatic Moss; 3 Rooted Vascular; 4 Floating Vascular; 5 *Unknown Submergent*; 6 *Unknown Surface*	1 Bedrock; 2 Rubble	1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic; 5 Vegetated	2 Nonpersistent	

MODIFIERS

...e adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry
...be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system

...dal	WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
	Coastal Halinity	**Inland Salinity**	**pH Modifiers for all Fresh Water**			
S Temporary-Tidal; R Seasonal-Tidal; Semipermanent-Tidal; Permanent-Tidal; Unknown	1 Hyperhaline; 2 Euhaline; 3 Mixohaline (Brackish); 4 Polyhaline; 5 Mesohaline; 6 Oligohaline; 0 Fresh	7 Hypersaline; 8 Eusaline; 9 Mixosaline; 0 Fresh	a Acid; t Circumneutral; Alkaline	g Organic; n Mineral	b *Beaver*; d *Partially Drained/Ditched*; f Farmed	h *Diked/Impounded*; r Artificial Substrate; s *Spoil*; x Excavated
...ater regimes are only used in ...uenced freshwater systems						

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SOUTH TRENTON, N.Y.

NOTES TO THE USER

- Subsystems, Classes, Subclasses, and Water Regimes in *Italics* were developed specifically for NATIONAL WETLANDS INVENTORY mapping.
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions.

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Prepared by National Wetlands Inventory
1991

AERIAL PHOTOGRAPHY

DATE:	4 / 86	DATE:	/ /
SCALE:	1:58 000	SCALE:	
TYPE:	CIR	TYPE:	

STUARINE — SYSTEM

2 — INTERTIDAL — SUBSYSTEM

AB — AQUATIC BED	RF — REEF	SB — STREAMBED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	SS — SCRUB-SHRUB	FO — FORESTED	CLASS
gal ooted Vascular loating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	2 Mollusc 3 Worm	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	Subclass

LACUSTRINE — SYSTEM

2 — LITTORAL — SUBSYSTEM

RB — ROCK BOTTOM	UB — UNCONSOLIDATED BOTTOM	AB — AQUATIC BED	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	EM — EMERGENT	OW — *OPEN WATER/ Unknown Bottom*	CLASS
edrock ubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent		Subclass

MODIFIERS

adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

	WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
	Coastal Halinity	**Inland Salinity**	**pH Modifiers for all Fresh Water**			
S Temporary-Tidal Seasonal-Tidal Semipermanent-Tidal Permanent-Tidal *Unknown* regimes are only used in nced, freshwater systems	1 Hyperhaline 2 Euhaline 3 Mixohaline *(Brackish)* 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral i Alkaline	g Organic n Mineral	b *Beaver* d *Partially Drained/Ditched* f Farmed	h *Diked/Impounded* r Artificial Substrate s *Spoil* x Excavated

819

REFERENCE 34

MATERIAL SAFETY DATA SHEET
BLASOCUT 4000 STRONG, ART. NO. 872

PRODUCT IDENTIFICATION

MANUFACTURER: BLASER SWISSLUBE INC
ADDRESS: Westgate Industrial Park
GOSHEN NY 10924
PRODUCT NAME: BLASOCUT 4000 STRONG Art. No. 872
EMERGENCY PHONE NUMBER: (914) 294-3200
PRODUCT TYPE: Water Soluble Metal Working Coolant, Mineral Oil based

PRODUCT COMPOSITION

Blasocut 4000 Strong is a tested, nonhazardous mixture of :
(Please refer to Health Hazard Data)

INGREDIENT:	%	CAS NO:
Severely Hydrotreated Mineral Oil	30-50	64742-52-5
Anionic emulsifiers	25-35	68608-26-4
		61790-44-1
Chlorinated paraffins	5-15	61788-76-9
Polar additives	2-5	8001-85-2
		61788-66-7
Corrosion and Fungi inhibitors	0.5-1	
Odorant and Dye (technical grade of food dye)	<0.1	

Stabilizers (Total 0.1-0.5%):
Na-benzoate; 2,3-pentandiol 2-methyl; Ca-acetate; alpha-Tocopherol; citric acid; tartaric acid; ascorbic acid; ascorbylpalmitate; oleylsarcosine; 1-hydroxyethyl-2-oleyl-imidazolin and glycerin

Blasocut 4000 Strong DOES NOT CONTAIN: Phenoles, Nitrites, formaldehydes or formaldehyde releasing substances, heavy metals (such as Lead, Mercury etc.), active sulfur, arsenic, PCB, PCT, TCDD or other Dioxin related substances. PCA content less than 10 ppm(GC)

All ingredients of Blasocut 4000 Strong are listed in the TSCA Chemical Substance Inventory.

SARA TITLE III INFORMATION:
IMMEDIATE HEALTH (Acute): No
DELAYED HEALTH (Chronic): No
FIRE HAZARD: No
REACTIVE HAZARD: No
SUDDEN PRESSURE RELEASE: No

Blasocut 4000 Strong does not contain any ingredients listed in the SARA Title III, Section 313 List or CERCLA List of Chemicals

REFERENCE 35

REFERENCE # 35
PAGE 1 OF 1

EMCON

By JRG Date 9-25-95
Chkd. by ______ Date ______
Job No. 55595-001.000
Sheet No. ______ of ______
Subject Population of Private Well Users on Unconsolidated & Bedrock Aquifers

Radius Ring	Tot. Private Well Pop.	Population on Unconsolidated (20%)	Population on Bedrock (80%)
1-2 mi.	2	-	2
2-3 mi.	803	161	642
3-4 mi.	966	193	773

Form DR001

REFERENCE 36

REFERENCE # 36
PAGE 1 OF 1

Wehran EMCON
Northeast

TELEPHONE CONVERSATION MEMORANDUM

Client: Ebasco
Project: Universal Waste
Proj. No.: 85595-001.000
Date: 9-6-95
Time: 10:30 a

Call To/From: Kevin Lewis
Representing: Oneida Co. Soil & Water Conservation District
Phone No.: (315) 736-3334

Summary of Conversation

Soil Classification for Universal Waste Site

Site is located on a cut & fill area. No native deposit information.
Site is located on fill.

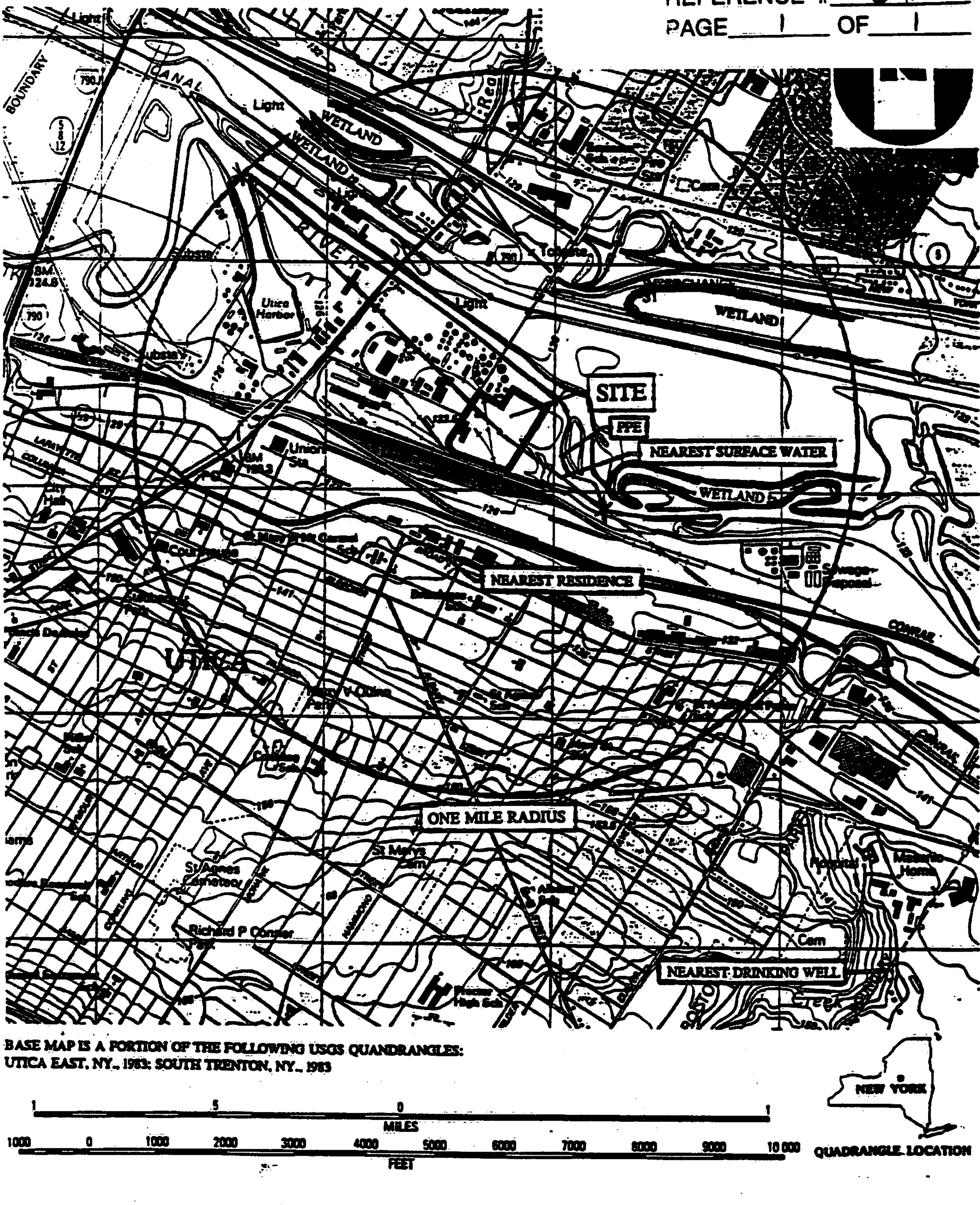
Copies To

By Julia A. Gilbert

10.608.8/94.4261089

REFERENCE 37

REFERENCE # 37
PAGE 1 OF 1



BASE MAP IS A PORTION OF THE FOLLOWING USGS QUANDRANGLES:
UTICA EAST, NY., 1983; SOUTH TRENTON, NY., 1983

Theta ⊖ = 171°

Figure 1

SITE LOCATION MAP
UNIVERSAL WASTE
UTICA, NEW YORK

EBASCO